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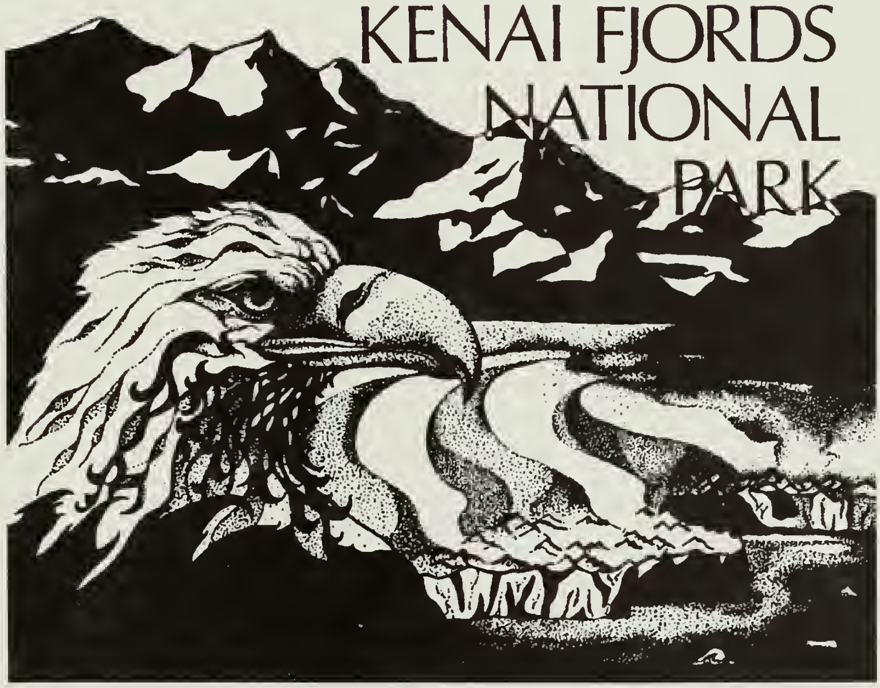
Draft
Frontcountry Development Concept Plan
Environmental Assessment

September 1995



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SUMMARY

The National Park Service (NPS) is considering expansion of the visitor and administrative facilities for Kenai Fjords National Park. The park visitor center located in Seward, Alaska, and visitor facilities at Exit Glacier, Alaska, comprise the frontcountry for the park. These two complementary areas serve as the principal gateways to the park fjords and to the Harding Ice Field. Most of the park is accessible primarily by boat and by foot.

Existing visitor facilities for both frontcountry areas experience crowding during the summer season, when the park receives most of its visitation, and administrative space requirements currently exceed the existing headquarters building capacity. The dramatic growth in visitation the park has experienced over the last 15 years is projected to continue into the next century. This expected rise in visitation will amplify the need for expanded visitor and administrative facilities, and will create a greater need to protect park resources from degradation.

The purpose of the proposed actions is to accommodate this growth in visitation while protecting park resources. This Frontcountry Development Concept Plan and Environmental Assessment addresses two primary goals for the park visitor contact areas at Kenai Fjords National Park:

- in Seward, to assess the size and functional requirements for an expanded visitor center and headquarters, and to establish and evaluate potential sites for such a facility
- at Exit Glacier, to preserve the rustic character of the visitor experience, and to meet the anticipated growth in visitation with careful planning of appropriate facilities

Visitor projections for the next 15 years were developed. For the visitor center and headquarters facility, the size and necessary functional elements were determined, and 19 sites were considered for building locations. The possibility of sharing a facility with other public agencies was explored as well. The 19 sites were narrowed to four sites, which are part of the visitor center alternatives presented in this document.

All four of the action alternatives propose a visitor center that would give the Kenai Peninsula visitor an overview of the various public lands in the area, and would be jointly operated by participating public agencies, with the National Park Service (NPS) as the lead agency. A staffed lobby and trip planning area would provide the visitor with information on recreational opportunities. Exhibits, artifacts, and audio-visual presentations would give the visitor an impression of the park's diverse and mostly inaccessible resources.

All of the proposed locations are in or near Seward's small boat harbor. Two of the draft alternatives propose expanding the existing visitor center in its current location next to the harbor marina, with the administration functions in a separate facility. The first action (alternative B) would locate an NPS administration building across the street; the second (alternative C) would locate a joint National Park Service/Forest Service administration building one block south of the existing visitor center, next to a freshwater lagoon outlet. The remaining two action alternatives proposed collaborating with the Forest Service to construct an administration building that includes the visitor center in the same facility.

Alternative D uses the same site as alternative C, and alternative E locates the facility farther south on a portion of Seward's waterfront park. Alternative A is a no action alternative.

Alternative development scenarios for Exit Glacier have been established and evaluated. Alternative A is a no action alternative. The focus is on two action alternatives that would retain the existing rustic feel of the area while planning for an anticipated doubling in visitation. The first action (alternative B – Minimum Development) would make minor improvements to the parking, visitor contact station, roads, trails, and rest rooms, while limiting the number of vehicles once the parking area is full. The second action (alternative C – Moderate Development) proposes a 50% expansion of the parking area, with provisions for a shuttle bus service once the parking area use exceeds an acceptable threshold of demand. A carrying capacity study would be conducted to determine this threshold. Alternative C also proposes a new, larger visitor contact station, improvements to trails and restroom facilities, use of alternative power sources for lighting, and paving of the access road and parking. Both alternatives include a gate near the Resurrection River Bridge for control of access and monitoring of use levels. Winter use would remain the same in all alternatives.

With the no action alternatives for both the visitor center/headquarters and for Exit Glacier, it is estimated that the existing facilities and current visitor management policies will become inadequate. If visitation rates grow as projected, crowding will compromise the frontcountry park experience, and possibly impact the scenic qualities of the park.

All visitor center action alternatives would construct visitor information and staff facilities to allow for the next fifteen years of visitation growth. No significant environmental impacts are anticipated for any of the sites. All sites are outside of the 100-year flood plain mapped by the Federal Emergency Management Agencies (1981); however, because all sites have been known to flood, the National Park Service considers them to be located within a flood plain. As is common to waterfront areas in Seward, all sites are subject to seismic and tsunami hazards. Site 15 may be at a slightly higher risk of flooding and seismic activity. (The National Park Service will therefore prepare a Statement of Findings to justify use of the flood plain and tsunami hazard areas, and to describe mitigation measures.) Appropriate building construction methods would be implemented to protect all new structures from damage due to these natural hazards.

At Exit Glacier, no significant environmental impacts are expected from any of the alternatives. However, road treatment, whether by use of dust palliatives as proposed in alternative B, or paving, as proposed in alternative C, would need to be executed so that the palliatives or oil-laden storm water run-off would not enter any surface or ground waters. Protective measures would be specified in the design phase of the project.

Additional site specific compliance will be completed after the design phase for the preferred alternatives, and prior to construction.

No preferred alternative has been selected for either the visitor center/headquarters or Exit Glacier. The purpose of this document is to provide the analysis that will inform the public and provide the basis for wise choices towards the development of a satisfying and enriching visitor experience, and protection of the scenic and natural resources of one of America's greatest national treasures.

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PURPOSE AND NEED

INTRODUCTION

The National Park Service (NPS) is considering expansion of their visitor contact and administrative facility located in Seward, Alaska, and upgrading of visitor facilities at Exit Glacier, Alaska. The existing Seward visitor facility and the Exit Glacier area comprise the frontcountry for Kenai Fjords National Park. Existing visitor facilities for both areas experience crowding during the summer season, when the park receives most of its visitation, and administrative space requirements currently exceed the capacity of the existing headquarters building. The dramatic growth in visitation the park has experienced over the last 15 years is projected to continue into the next century. This expected rise in visitation will amplify the need for expanded visitor and administrative facilities.

The purpose of the proposed actions is to accommodate this growth in visitation while protecting park resources. The goals of the plan are to provide facilities in Seward where visitors can become informed about the varied recreational opportunities available in the park and region, and educated about the significant and fragile resources of the park. The proposed actions would also provide for expanded administrative facilities in Seward. Goals for Exit Glacier are to provide improved visitor interpretive and access facilities while preserving environmental quality and the visitor's experience of a natural setting.

This Development Concept Plan (DCP) follows the umbrella guidance stated in the 1984 General Management Plan (GMP), in concentrating park development in the Exit Glacier area, and in planning for central visitor and administration facilities in the area of Seward's small boat harbor. It also strives to embody the GMP's goals and policies regarding visitor use, interpretation and resource management.

OVERVIEW OF KENAI FJORDS NATIONAL PARK

Kenai Fjords National Park lies immediately south and west of Seward, Alaska, which is a two and one half hour drive south of Anchorage. The park is located in the coastal Kenai Mountains of southcentral Alaska, and encompasses an integrated continuum of icefield, glacier, rainforest, and marine fjord ecosystems. Within the boundaries of the park lies Harding Icefield, one of the four major icecaps in the United States, with 34 outflowing glaciers. This area is believed to be the most accessible and easily understood example of such glacial phenomena in the United States. Miles of coastal fjords with tidewater glaciers display spectacular scenery and support a treasury of wildlife. It is a freshly formed glacial landscape in dynamic process.

Most visitors experience the park on charter boat cruises or private boats to the coastal fjords, and by driving to Exit Glacier, the sole land access to a glacial outlet stream of the Harding Icefield. A limited number of visitors experience the Harding Icefield by foot and by air, or the coastal rainforests by overland foot travel. Visitor facilities for the park are primarily located in Seward and at Exit Glacier, an area nine miles northwest of Seward. The visitor center and park administrative staff share a small facility located in the small boat harbor in Seward, where travelers can receive information about the park and other public lands. At Exit Glacier a quarter-mile trail provides leads to the toe of the glacier, and a steep, three-mile trail leads to the Harding Icefield.

PURPOSE AND SIGNIFICANCE OF KENAI FJORDS NATIONAL PARK

> *"Kenai Fjords National Park is established to ensure the preservation, interpretation and study of a spectacularly beautiful interrelated icefield and fjord/rainforest system and its associated population of seabirds and marine mammals."*
>
> *Congressional Committee Report, 1980*

In 1980 Kenai Fjords National Park was established to perpetually protect the glacier and coastal fjord ecosystems along the Southeastern Kenai Peninsula. In creating the park, Congress stated its purposes as "to maintain unimpaired the scenic and environmental integrity of the Harding Icefield, its out-flowing glaciers and coastal fjords and islands in their natural state; and to protect seals, sea lions and other marine mammals, and marine and other birds...free of human activity which is disruptive to their natural processes." This legislation is consistent with the NPS mission for all parks in the national system: to conserve the scenic, natural, historic, and wildlife resources, and to provide for public enjoyment of these resources insofar as they remain unimpaired for future generations. The legislation creating the park can be found in Appendix A.

The park's most significant feature is the Harding Icefield, representing the glacial and tectonic processes that form the land and provide habitat for a rich array of wildlife, see map opposite. Other important features of the park include:

- It is a living laboratory of change where plants and wildlife live amidst dynamic interactions of water, ice and a glacier-carved landscape being relentlessly pulled down by the earth's crustal movements;

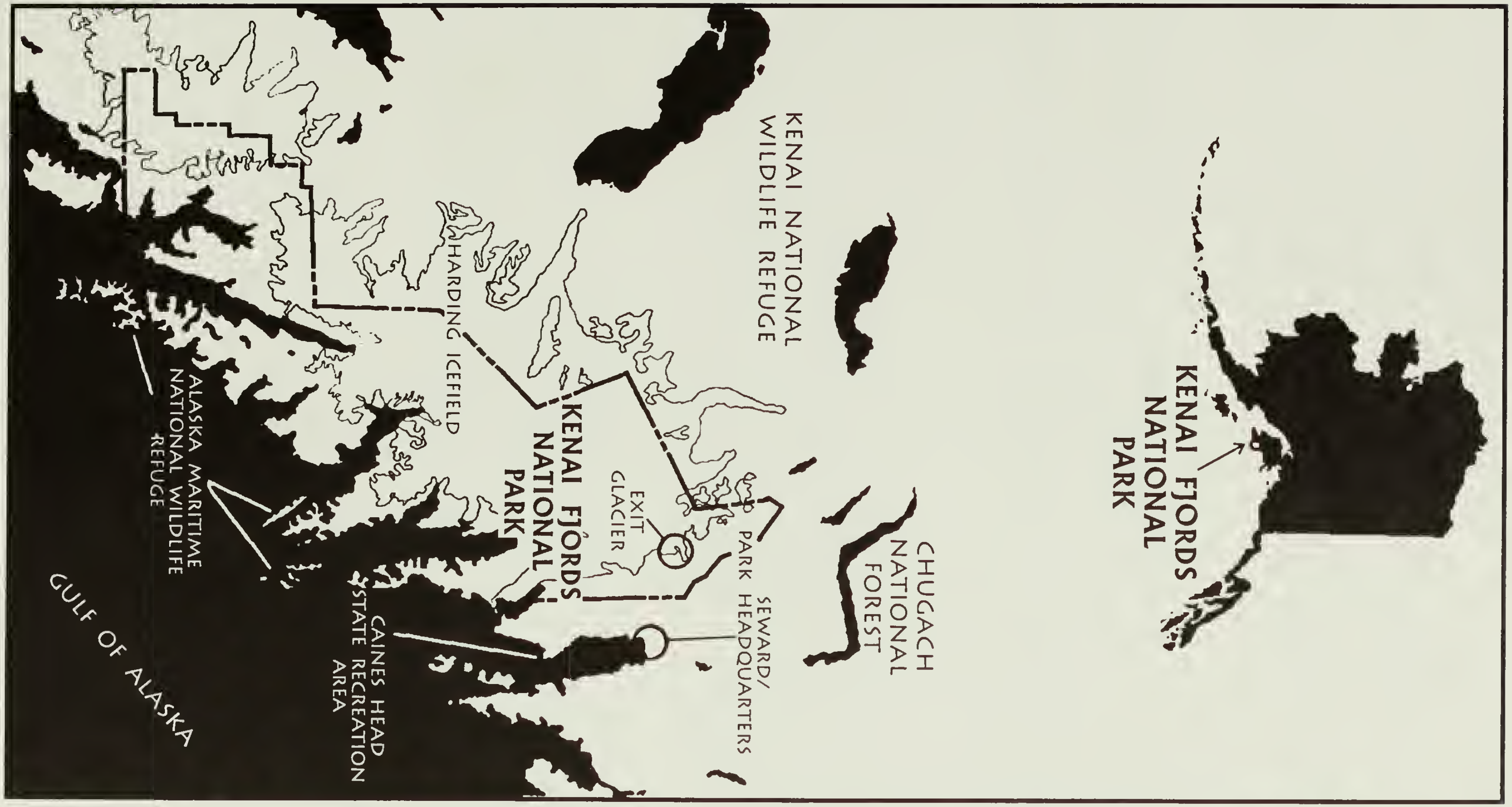
- The Harding Icefield covers more than 300 square miles and represents a vestige of the formerly vast Pleistocene icefields;

- Some 34 major glaciers radiate from the icefield, including several which plunge into the narrow finger fjords;

- The process of glaciation, combined with tectonic movements, has created the numerous submerged canyons, half-moon bays, and sheer rock walls of the fjords;

- The Exit Glacier area provides visitors a rare opportunity to approach a glacier on foot, as well as the opportunity to view or hike to the Harding Icefield; and

- The park provides habitat for an abundant variety of terrestrial and marine mammals, marine birds, and fish.


KENAI FJORDS NATIONAL PARK
KENAI NATIONAL WILDLIFE REFUGE
CHUGACH NATIONAL FOREST
SEWARD/ PARK HEADQUARTERS
EXIT GLACIER
KENAI FJORDS NATIONAL PARK
HARDING ICEFIELD
CAINES HEAD STATE RECREATION AREA
ALASKA MARITIME NATIONAL WILDLIFE REFUGE
GULF OF ALASKA

N
NOT TO SCALE

KENAI FJORDS NATIONAL PARK
PARK LOCATION

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BACKGROUND

NEED FOR THE DEVELOPMENT CONCEPT PLAN (DCP)

Rapid growth in visitation to the developed areas of Kenai Fjords National Park created the need to reexamine visitor use and general facilities development in Seward and at Exit Glacier. By 1993 the visitor center and administrative needs had outgrown the existing facility in Seward. At Exit Glacier, the parking area capacity had begun to reach its limit during peak periods, and resource protection, public safety and the level of visitor services required evaluation.

The purpose of the DCP is to predict future levels of park use, anticipate visitor and administrative facilities that will be needed, and to plan for those facilities. This plan assesses possibilities in Seward and at Exit Glacier and examines the impacts of a range of alternatives. Visitor use, interpretation and resource management issues have been addressed only as they relate to proposed facilities development. Although the coast and icefield are not addressed in the plan, the need for interpretation of those resources has influenced the size and function of the visitor center in Seward.

BACKGROUND ON PLANNING AT KENAI FJORDS NATIONAL PARK

In 1980 House and Senate committee reports that accompanied the enabling legislation for the park directed the National Park Service to prepare a plan for the Exit Glacier area. The Exit Glacier Development Concept Plan, completed in 1982, outlined development of a parking area, visitor contact facility, ranger residence, accessible trail, Harding Icefield trail, walk-in campground, and public use cabin. Those facilities have since been constructed.

In 1984 the National Park Service completed a General Management Plan for the park. The document discussed critical issues, proposed policies for resource management and visitor use, and delineated management zones for park use and development. Exit Glacier was recommended as a park development management zone with the majority of the park to be managed as a natural zone and small sections in the fjords as special use zones or historic zones. The document included the DCP plans for visitor facilities at Exit Glacier, and outlined the need for a new visitor center in Seward, to be located in the vicinity of the small boat harbor.

Other planning for the park includes the Environmental Impact Statement for Park Wilderness Recommendations and a Land Protection Plan, both completed in 1988. A resource management plan was developed by the park in 1993. The document described how the National Park Service should implement resource management objectives, and outlined additional studies needed to establish baseline information and to monitor impacts to natural and cultural resources.

Other related planning documents completed to date are the Interpretive Prospectus prepared in 1990, and the Trail Plan for Exit Glacier, developed by the park in 1991. The recommendations in those studies have been considered in the current planning process and largely incorporated into this DCP.

ASSUMPTIONS REGARDING THE DCP PROCESS

- The purpose of the plan is to provide a practical long-term guide that is consistent with the General Management Plan, is implementable, and supports the objectives of park management.

- Through the planning process, the potential scale and location of the park visitor center and headquarters will be defined, and the potential character of the visitor experience at Exit Glacier will be envisioned.

- The plan and environmental assessment will be prepared in compliance with all applicable laws, policies, guidelines, and professional standards. The public will be kept informed and involved throughout the process.

- The planning and management decision-making process will be guided by and compatible with the National Park Mission and the enabling legislation for Kenai Fjords National Park.

THE DCP PLANNING PROCESS

In September, 1993 the DCP process was initiated with public scoping meetings in Seward and Anchorage. The public, along with park staff, identified issues and established a direction for the plan study.

The planning team identified several potential sites for a visitor center. They examined the environmental opportunities and constraints present in each site and at Exit Glacier. Based upon past visitor use patterns, the planning team made visitor use projections for the next 15 years, and anticipated the sizes and kinds of facilities that would be required.

At the same time, discussions began with other public agencies responsible for public lands on the Kenai peninsula regarding the potential for sharing visitor and administrative facilities. Several agencies expressed interest in cooperating to provide visitor information services. These included the United States Department of Agriculture Forest Service (hereafter referred to as Forest Service), Alaska State Parks, and the Alaska Maritime National Wildlife Refuge, as well as the Seward Chamber of Commerce. The Forest Service indicated interest in sharing administrative facilities.

Preliminary alternatives for both Seward and Exit Glacier were developed and presented to the public in a preliminary alternatives newsletter and in meetings in Seward and Anchorage.

In response to public input and updated information, those preliminary alternatives were narrowed and refined into new alternatives. Those alternatives are presented and evaluated in this document. This document does not include a preferred alternative.

Following public review, one of the five visitor center alternatives will be selected as the preferred alternative for Seward, and one of the three Exit Glacier alternatives will be selected. If the preferred alternatives are approved, they will form the basis for the final Development Concept Plan for Kenai Fjords National Park.

PROJECTED VISITATION GROWTH

Visitation to Alaska has grown substantially in the last decade. Kenai Fjords National Park has also experienced a great rise in visitor numbers within this time period, with the number of park visitors nearly tripling over the last four years. Almost 200,000 people visited the park or park facilities in 1994.

Socioeconomic forecasts indicate that this growth trend will continue for the next fifteen years. Projections are based upon historical visitation growth rates for the park and for Alaska, and on the anticipated growth in tourism due to scheduled projects in the Seward area. The Alaska Sea Life Center (ASLC), a marine mammal research center due to be open in 1998, will feature a visitor component that is expected to draw large numbers of visitors to Seward. The number of cruise ships docking in the port of Seward nearly doubled between 1993 and 1995, and the opening of the ASLC is expected to contribute to further growth in the numbers of cruise ships ports-of-call. Improvements to the Exit Glacier access road will allow buses that have been prohibited from driving the road to bring additional visitors to Exit Glacier.

Projections suggest that visitor numbers in the year 2003 will be close to 300,000 annually, with a third of these stopping at the Seward Visitor Center and two thirds traveling to Exit Glacier. By 2008, visitation for both facilities will have nearly doubled from 1993 levels, when the Exit Glacier area may receive almost 4,000 people on a busy weekend day and the visitor center may receive nearly 1,800 people on a peak day. A report showing visitor projections for the years 1998, 2003, and 2008 at both the visitor center and at Exit Glacier can be found in Appendix B.

Visitation to the park is concentrated within a short period during the year. Most people visit in the summer months, with July as the peak month; in July of 1994 the park received over 64,000 visitors. June and August were the next busiest months, with over 46,000 visitors each. The season is becoming longer, as visitation during the months of April, May, September, and October has increased. These patterns are expected to continue with the anticipated growth in visitor numbers.

PARK ISSUES ADDRESSED IN THE DCP

ISSUES FOR THE VISITOR CENTER AND HEADQUARTERS

The park's visitor center serves over 50,000 visitors annually (62,116 in 1993). It functions as headquarters and office space for 17 permanent and up to 23 non-base funded seasonal and volunteer staff. Visitors obtain information about the park and the area, participate in interpretive programs, watch audio-visual programs, and purchase publications. For many, the visitor center is the primary experience of the park; the Harding Icefield is difficult to access and boat tours of the Kenai Fjords can be unavailable due to high demand, cost, and inclement weather. For others, it is a place to learn more about what one might experience on a charter boat, kayak, hike, drive, camping, or fishing trip.

Crowding

Because of a lack of space and concentration of visitors during the summer months, conditions in the visitor center are frequently crowded during the visitor season. Demand for seating often exceeds capacity of the 30 person auditorium; an average of 36 people attended each interpretive program in this room during July of 1995. Visitors often wait ten or twenty minutes for the next showing of a video or slide show due to full conditions or desire to view an alternate presentation. The small lobby space does accommodate exhibits or other features to fill this waiting time. During the summer, the small auditorium is constantly in use for audio-visual and ranger-led programs, and occasionally the park must use another auditorium in the community to accommodate larger groups. Crowding is especially severe several times a week when cruise ships and charter vessels disembarking visitors add large groups to an already full facility, and during the 10 to 15 days per summer season when weather prohibits charter boats from taking passengers into the fjords.

Orientation Needs

Travelers stop in the visitor center seeking a wide range of information on the region's attractions, including the Exit Glacier area, the park fjords, the town of Seward, Chugach National Forest, and Caines Head State Recreation Area. However, there is a limited amount of space to convey an overview of the area's diverse public lands and the many recreational opportunities available. At times during the busy season, NPS staff at the visitor center cannot accommodate all of the informational demands of travelers.

Interpretation Needs

Exhibit space to convey safety, outdoor ethics, and park interpretation is minimal. In an expanded visitor center, interpretive staff would highlight the unique environments of the park such as the Harding Icefield and its associated glaciers, the fjord rainforest ecosystem, and the fjord marine ecosystem, to ensure their continued preservation.

Staff Space

The staff required to manage the park's resources has also exceeded the building's capacity for office space. In 1995, the park began to lease space in other structures for administrative uses. If staffing levels keep pace with the growth of visitation, the shortage of office space will increase.

Parking

Parking in the small boat harbor is limited. Each of the action alternatives provides as much parking as can reasonably fit on the site, in order to help alleviate this problem.

EXIT GLACIER ISSUES

Crowding

At the scoping meetings in September of 1993 the public expressed a strong desire to preserve the pristine qualities of the Exit Glacier area, while also maintaining access for summer visitation and winter recreation. However, current crowding at peak times is diminishing the experience. On most summer weekends and holidays, demand exceeds space in the parking area, and drivers must circulate through the lots to locate a parking space or illegally park along the roadside. Without a separate designated area, bus parking conflicts with automobile circulation, compounding the traffic problem.

Pedestrians must walk through the traffic in the lots to reach the main trail, where all visitors are funneled through the congested two-way asphalt trail to arrive at the glacier. While the recently upgraded nature trail could serve as an alternate return route and thus relieve congestion, it has been underused in the past. The public expressed a need for a wider range of activities and types of experiences, especially more trails that would disperse visitors. There were numerous complaints about inadequate sanitary facilities.

These conditions will intensify in the future as visitation to the area increases.

Interpretation and Safety Needs

A gathering place is needed for addressing groups from schools and tour buses, especially in inclement weather. The tiny visitor contact station is too crowded to be comfortable more than 60% of the time that it is open. It is partially hidden from the visitor approaching the glacier and is mostly visited on the visitor's return trip from the glacier.

The glacier mass is a compelling force, drawing visitors dangerously near to it. Because the ice is always moving, and large chunks can fall at any time, standing on or near the glacier is extremely hazardous. Education and additional staff are needed to alert visitors to this danger.

The area offers the visitor a unique opportunity to learn about glaciation and the successional patterns of the glacial landscape. One can see the land forms created by the receding glacier, and the patterns of vegetation that have colonized the newly bared land over the last two hundred years. Other topics for interpretation are the Harding Icefield, wildlife and ecological communities, outdoor safety and ethics, and NPS resource management. Current interpretation is provided through casual interaction with visitors, the viewpoint kiosk panels halfway along the trail, daily nature trail walks, and weekly Harding Icefield trail hikes. The public expressed a desire for more interpretation through increased staff and self-guiding materials. Some favored a small, seasonal visitor center to replace the visitor contact station.

Resource Protection

In scoping meetings, the public expressed a strong desire to preserve the wildlife habitat in the area. Currently, the popularity of the Harding Icefield Trail is causing degradation of trailside vegetation and possible displacement of wildlife. Increased visitation will put greater pressure upon these resources. While the DCP does not address the Harding Icefield Trail directly, visitor management policies in the plan could affect use and therefore could impact the trail quality, adjacent vegetation, and wildlife habitat.

ISSUES NOT ADDRESSED IN THE PLAN

Issues other than those relating to physical planning for the visitor frontcountry are not part of the plan scope. For example, the plan does not address areas in the park fjords or access to the Harding Icefield. While the DCP strives to conform with all pertinent regulations and codes and makes suggestions for community improvements that would directly affect the proposed alternatives, it does not comprehensively plan for community facilities. The plan does not address general park management issues or park programs.

GOALS

GOALS FOR THE VISITOR CENTER

- Provide information and orientation about public lands, facilities, and places of interest in the vicinity of the park;
- Provide a year-round vicarious experience of the park resources (icefield, glaciers, fjords) for the many visitors who cannot experience these resources directly due to constraints of time, money, accessibility, or weather;
- Provide the opportunity for all visitors to gain a greater understanding and appreciation of the National Park, National Park ideals, and nearby natural and cultural resources;
- Provide appropriate office space to accommodate current and projected staffing levels, located either in the same building or in proximity to the visitor center;
- Make visible the National Park Service's commitment to sustainable design, through appropriate facility siting, design, and materials;
- Cooperate with the city of Seward and area residents in the planning of new facilities, in order to ensure that proposed developments;
- Are in keeping with the small-town image of Seward;
- Are compatible in scale and land use with surrounding developments;

- Provide parking in compliance with city requirements;
- Are compatible with city and area management plans;
- Are located to provide easy and safe access to park visitors;
- Cooperate with other public land management agencies such as the Forest Service, Alaska State Parks and others in exploring partnerships for sharing administrative and interpretive facilities.

EXIT GLACIER GOALS

To meet the needs of visitors at Exit Glacier by:

- Providing the opportunity to experience the glacier in a predominately natural setting at the edge of a wilderness;
- Providing interpretation which complements personal contact with the glacier as the primary visitor experience;
- Providing a network of trails which are of varying difficulty in order to allow for a variety of visitor experiences and to minimize crowding;
- Providing visitor facilities which are appropriate in location, size, scale and character, in order to minimize impacts on the natural and cultural resources of the park;
- Providing options for the management of visitors during peak season.

IMPACT TOPICS SELECTED FOR FURTHER CONSIDERATION

Specific impact topics were developed for discussion and for comparison of environmental consequences of each alternative. The topics were identified based on agency and public concerns, regulatory and planning requirements, and known resource issues. A brief rationale for the selection of each impact topic is given below as well as the rationale for dismissing specific topics from further consideration.

This document does not assess site specific impacts. Site specific compliance would be completed after the design phase and prior to construction.

VISITOR CENTER

Visitor Experience and Scenic Resources

Proposed actions in the alternatives would directly affect visitor experience and use of the visitor center, and consequently this topic is assessed further in this document.

The proposed actions in the alternatives could affect the visual character in the small boat harbor. Because scenic resources are a primary determinant of the visitor experience, these two topics are evaluated together.

Socioeconomic Environment and Visitation

The potential impact of the alternatives on the socioeconomic environment (including population, economy, park visitation, and surrounding land uses) is a significant issue for this project, and is analyzed further in this document.

Access and Transportation

Easy access, safety, and adequate parking are issues that will affect the visitor experience and the functioning of the small boat harbor. The alternatives are therefore evaluated for their effects on these issues.

Natural Resources

Floodplains. Executive Order 11988 and NPS floodplain management guidelines require an examination of impacts on floodplains and of potential risks involved in placing facilities within floodplains. Because the sites are located in an area that was known to flood during an extreme rainstorm, this topic will be analyzed further.

Tsunamis. The NPS floodplain management guidelines require an examination of the potential risk of placing facilities within a coastal high hazard area subject to tsunamis. Because the sites are located within an area that was subject to a tsunami during the 1964 earthquake, this topic will be analyzed further.

Seismic Activity. The Environmental Atlas of Alaska (University of Alaska 1978) identifies four earthquake zones in Alaska based on possible maximum damage to structures. Seward is located in the zone of highest risk because of the frequency of recorded earthquakes and their magnitude. Therefore, this topic will be analyzed further.

Infrastructure. While utility infrastructure is not expected to affect the environment, it is evaluated to assess site feasibility and cost impacts.

Park Management and Operations

The proposed actions in the alternatives would directly affect management and operations of Kenai Fjords National Park, particularly with respect to interpretation, visitor information services, and staff coordination in Seward. These topics are addressed further in subsequent sections of this environmental assessment.

EXIT GLACIER

Visitor Experience and Scenic Resources

Proposed actions in the alternatives would directly affect visitor experience and use of the Exit Glacier area, and consequently this topic is assessed further in this document.

The alternatives could potentially impact the scenic qualities of the area. Because scenic resources are a primary determinant of the visitor experience, these two topics are evaluated together.

Socioeconomic Environment and Park Visitation

The potential impact of the alternatives on the socioeconomic environment (including population, economy, park visitation, and surrounding land uses) is a significant issue for this project, and is analyzed further in this document.

Access and Transportation

Access and parking are primary issues in all Exit Glacier alternatives, and would largely affect the visitor experience. The alternatives are therefore evaluated for their effectiveness in addressing access and parking issues.

Natural Resources

Vegetation and Wildlife. The National Environmental Policy Act (NEPA) requires examination of the impacts of federal actions on components of affected ecosystems. National Park Service policy is to protect the abundance and diversity of naturally occurring communities. Alternatives B and C would result in localized disturbance of vegetation and wildlife from facilities construction and the expected increase in park visitors. Although the amount of vegetation removed would be minimal, impacts of this removal and the impacts on wildlife will be examined further because of the relatively undisturbed condition of this natural area.

Infrastructure

Because the alternatives would impact the roads, trails, and sanitary facilities for the area, this topic will be evaluated further in the document.

Park Management and Operations

The proposed actions in the alternatives would directly affect management and operations of Kenai Fjords National Park, particularly with respect to interpretation, resource protection, and visitor safety. These topics are addressed further in subsequent sections of this environmental assessment.

IMPACT TOPICS ELIMINATED FROM FURTHER CONSIDERATION

VISITOR CENTER

Natural Resources

Water Resources and Wetlands. NPS is required under Executive Order 11990 and NPS wetland protection guidelines to evaluate impacts on wetlands and other waters subject to federal jurisdiction under the Clean Water Act. NPS policy is to avoid adverse impacts on wetlands and water resources to the extent possible.

The major water resource near the proposed project site in Seward is the lagoon outlet channel which flows past sites 3 and 15. The lagoon outlet is influenced by the tide and is connected to Resurrection Bay by two 48-inch culverts underneath a former railroad bed that forms the edge of the bay, and by culverts under Fourth Avenue.

Water quality impacts on the lagoon outlet channel would not occur. Consultation with the Alaska Department of Conservation, Water Quality Management Section has determined that proposed construction sites less than 5 acres in size are not subject to the Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) permits for storm water discharge (George pers. comm.). As described in the "Alternatives" chapter, best management practices would be implemented to protect the water quality of the lagoon outlet channel, control erosion, and minimize the transport of sediment to surface waters during construction.

A qualified wetland biologist determined, through a reconnaissance wetland survey, that there are no wetlands within the alternative project sites. In addition, consultation with the U.S. Army Corps of Engineers has determined that wetland impacts would not occur on any of the sites identified in the visitor center alternatives (see "Consultation" chapter) (Winn pers. comm.). The Corps is the federal agency that regulates activity in wetlands. If project designs are altered, the National Park Service would further consult with the Corps to determine if any regulatory requirements apply.

Vegetation and Wildlife. NPS policy is to protect the abundance and diversity of naturally occurring communities. The sites described in the alternatives have been previously cleared of vegetation and are located in the developed portion of Seward. Vegetation associated with natural systems does not exist on the project sites. No impacts on vegetation or wildlife would occur for the following reasons:

- Administrative offices, visitor center, and parking lots would either remain at current locations or would be constructed on existing gravel-covered or paved lots used for parking or playfields.

- The gravel-covered lots are very sparsely vegetated with weedy species and grasses associated with urban lawns.

- Construction would occur on existing lots and would not require changing the location or configuration of the existing bulkhead along the small boat harbor.

Threatened, Endangered, and Special Concern Species. The Endangered Species Act requires an examination of impacts on all federally listed threatened or endangered species resulting from federal actions. NPS policy additionally requires examination of the impacts on state-listed threatened or endangered species and federal candidate species.

The U.S. Fish and Wildlife Service (USFWS) reports that the American peregrine falcon (*Falco peregrinus anatum*), a federally listed endangered species, might occur in the project area. The USFWS, however, has determined the proposed action is not likely to adversely affect any federally listed, proposed, or candidate species and further consultation is not required (see “Consultation and Coordination” chapter). Based on the USFWS determination, impacts on threatened or endangered species or species of concern would not occur.

Air Quality. No long term impacts to air quality would result from any of the Seward alternatives. There would be some minor short-term and localized impacts to air quality during construction; these impacts would be insignificant to the air quality in Seward.

Cultural Resources

There are no known cultural resources in the project area. Should unknown resources be uncovered during implementation, work would be stopped in the discovery area, and the National Park Service would consult according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Graves Protection and Repatriation Act of 1992.

Artifacts found during construction on sites in Seward owned by the National Park Service could be retained for the park collection, or, as is more probably the case, turned over to the city of Seward to be accessioned, cataloged, preserved and stored in their museum. Artifacts found on construction sites leased by the National Park Service in Seward would be turned over to the landowner for disposition after appropriate consultation and concurrence by the State Historic Preservation Office.

Subsistence

There are no impacts to subsistence in any of the alternatives. See Appendix C.

Hazardous and Solid Wastes

Information that would allow an impact analysis of hazardous of solid wastes does not exist at this time. An analysis of this topic would be conducted during the design phase, and all regulatory compliance would be performed at that time.

EXIT GLACIER

Natural Resources

Water Resources and Wetlands. Water resources in this area include (1) surface water features such as Exit Creek and its several seasonal and perennial tributaries, and (2) ground water discharge sites. Ground water is discharged as seepage to stream channels in the lower part of Exit Creek near Resurrection River (Sloan 1985).

A qualified wetland biologist surveyed the site for waters of the United States, including wetlands. Wetlands and other waters (such as perennial and intermittent streams) that are regulated by the Corps under Section 404 of the Clean Water Act are not common in the project area. Wetland sites within the project area include several intermittent drainages with wetland plants located near the ranger station. A wetland is also located near the confluence of Exit Creek and Resurrection River adjacent to the park entrance road. Exit Creek and the unvegetated glacial outwash plain do not qualify as wetlands but are considered waters of the United States, which are regulated by the Corps. Impacts on wetlands or waters of the United States are not expected because the proposed action to construct new facilities and to upgrade trails would avoid these resources. If project designs are altered, the National Park Service would further consult with the Corps to determine any regulatory requirements.

Water Rights. There are three existing hand-pump wells at Exit Glacier. While there would be increased use with additional visitors, this increase would not be significant enough to require water rights.

Natural Hazards. Potential natural hazards that might affect park visitors in the Exit Glacier area include glacial advance, floodplains, avalanches, swift-moving water, and inclement weather. The National Park Service coordinates with the cities of Seward and Bear Creek for emergency evacuation and search-and-rescue procedures in the event such services are needed within the park.

> **Glacial Advance.** The current possibility of glacial advances for Exit Glacier appears remote. Glaciers within the Kenai Mountains have generally been retreating during the past 100 years (Sloan 1985). Lower temperatures and increased snow accumulation could reverse this trend, and Exit Glacier could advance into the park facilities. This change in glacier movement would be gradual, and an advance of the

terminus of Exit Glacier would be slow. Seasonal glacial movement does occur, and large blocks of ice can break off at any time near the glacier terminus. Maintaining rope barriers, warning signs, and ranger-led hikes near the glacier's terminus would minimize the potential risk for park visitors.

Floods or Flooding. Maps delineating the 100-year or 500-year flood boundary do not exist for the Exit Glacier area. A preliminary analysis, however, indicates the parking lots, ranger station, seasonal use cabins, and interpretive shelter are not in the 100-year floodplain for Exit Creek (Jones & Stokes Associates 1994).

Catastrophic flood events are apparently rare. Flood flows would not extend beyond the glacial outwash plain except for extremely rare events that would probably occur on more than a 100-year frequency. An intense three-day storm in October 1986 that produced 10.14 inches of rain at Exit Glacier did not flood NPS facilities at Exit Glacier (Rice pers. comm.). However, flash floods can occur in the small intermittent drainages near park facilities during or after an intense rainstorm. To reduce the risk of injury or death for park visitors, emergency warning and evacuation procedures and trail closings would be implemented.

Avalanche Zone. A snow avalanche zone has been identified along the steep south-facing slopes north of the park facilities (Sloan 1985). The run-out area of the avalanche zone is limited to the area near the base of the steep slopes. Any avalanches carrying snow and debris would likely be confined to an area that is approximately 500 to 800 feet north of the park entrance road. Existing and proposed park facilities are not located in this avalanche zone, and impacts on park facilities or visitors are not expected.

Threatened, Endangered, and Special Concern Species. The USFWS reports that the American peregrine falcon (Falco peregrinus anatum), a federally listed endangered species, might occur in the project area. The USFWS, however, has determined the proposed action is not likely to adversely affect any federally listed, proposed, or candidate species and further consultation is not required (see "Consultation and Coordination" chapter).

The Alaska Natural Heritage Program (AKNHP) maintains a list of plant species that are considered sensitive in Alaska. The AKNHP has identified four plants that could potentially occur in the project area and are considered rare by AKNHP: (1) Pink Poppy (Papaver alboroseum), (2) Aphragmus escholtzius, (3) Androsace alaskan, and (4) Whitlow grass (Draba kananaskis) (Lenz pers. comm.). Although the AKNHP considers these to be sensitive species, none of the four species is identified as a federally listed threatened, endangered, or candidate species; therefore, none of these species is legally protected (FR September 30, 1993 [50 CFR Part 17, Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review]).

Habitat types for these plants are alpine areas above timberline. Papaver alboroseum has been documented to occur near the project area at the upper end of the Harding Icefield trail (National Park Service 1988). None of the other species was seen during field visits and none has been recorded during past ecological investigations (Helm 1992, Ahlstrand n.d.). Based on the USFWS determination and the AKNHP information, impacts on threatened, endangered, or species of concern would not occur.

Air Quality. No measurable impacts to air quality would result from any alternatives for Exit Glacier. There would be some minor short-term and localized impacts during construction; these impacts would be insignificant to the air quality at Exit Glacier.

Cultural Resources

There are no known cultural resources in the project area. Should unknown resources be uncovered during implementation, work would be stopped in the discovery area, and the National Park Service would consult according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Graves Protection and Repatriation Act of 1992.

Any artifacts recovered from park property at Exit Glacier will be accessioned, cataloged, preserved and stored in compliance with NPS-28. These activities could require modification of cost estimates during construction and could also result in the need for a larger curatorial storage facility.

Subsistence

There are no impacts to subsistence in any of the alternatives. See Appendix C.

THE ALTERNATIVES

INTRODUCTION TO THE ALTERNATIVES

Several alternatives have been developed to achieve the goals stated in the previous section. In Seward, the focus has been on the requirements for and location of a visitor center and headquarters. At Exit Glacier, the emphasis has been on the visitor experience and anticipated needs for expanded visitor facilities. This section presents the general parameters for potential buildings and sites, followed by a description of the alternatives. This chapter also summarizes the environmental consequences for the alternatives, found in Tables 1 and 2. A comparative cost analysis of the alternatives is provided in Appendix D.

BUILDING AND SITE REQUIREMENTS

Facility Sizing

To develop the site and building requirements for Seward and Exit Glacier, visitor projections were made for high-use days for the years 1998, 2003, and 2008. The high-use day projections were then broken down to forecast how many visitors might be present at the visitor center and at Exit Glacier during the busiest times of these days. (See Appendix B for rationale, projections, and methodology). These numbers were used to generate square footage sizes for the visitor center and the number of parking spaces that would be needed for Exit Glacier.

Because visitation varies greatly at different times of the year (see Table 8, Appendix B), planning sizes based upon a high-use day would yield underused facilities during the remainder of the year.

Conservative figures were therefore used to recommend the size of the visitor center. Methodology and rationale for the visitor center sizing and use of the Exit Glacier projections for developing and evaluating alternatives can be found in Appendix B.

Building programs for the visitor center were developed by planning needed functions. The sizes of these were planned using architectural standards and anticipated space needs for the various functions. Building programs for administrative facilities were determined by anticipating personnel numbers and the required office and support space for each.

Visitor Center Building Program

Because the lands and facilities on the Seward peninsula are managed by various agencies, park staff routinely answer questions about recreation and tourist facilities outside of the park. Other agencies have shown interest in cooperatively providing visitor information about their lands in a new visitor center. The program for the visitor center has therefore allowed space for cooperating agencies to jointly provide visitor orientation services.

In order to provide orientation about places to hike, camp, boat, fish, and observe wildlife, the facility would feature a modest lobby with informational resources. A reception counter would be at its heart, sized to allow two or three park and other cooperating agency staff to answer questions and issue permits during busy periods. A trip planning area with tables would make maps and guidebooks available for study and self-service. Alaska Natural History Association (ANHA) publications would be displayed for purchase in this area as well. Restrooms would be adjacent to the lobby, and could be designed with an outside entry so they could be used after the visitor center is closed.

Few visitors have the opportunity to see the park as a whole, but a sense of its size and diversity can be conveyed through an audio-visual presentation. An auditorium would house slide and video shows, ranger talks, and lectures. To accommodate any surges of visitors, an auditorium would be sized to hold 100 people. It would be especially well-used on days of inclement weather when visitors cannot get out to see the park. A multipurpose room that holds 50 people could show an alternate audio-visual presentation, and be used as a classroom during the school year. These rooms could also be used for meetings and special park and community events. (Currently, the park's small auditorium is well-used for public meetings, safety and interpretive training for park staff and local tour boat operators, and for meetings and special events of local recreational organizations and regional interest groups. The park occasionally must use another auditorium in Seward to accommodate larger groups.) A separate projection booth would allow state-of-the-art interpretive presentations for both rooms.

An exhibit area would present displays on the park's natural and cultural resources. The Harding Icefield, tectonics, glaciology, landscape formation, marine and terrestrial wildlife, succession of plant communities, indigenous self-sufficiency, and Russian fur trading and boat building are all stories that could be told in the exhibits. These stories might be linked and integrated with other public agency lands through a thematic presentation of the various ecosystems of the area. The ecosystem displays could be organized in a transect, starting with the Icefield and outflowing glaciers, continuing with the pioneering plant communities to the mature temperate rainforests, and ending with the fjord and island ecosystems. The exhibit area would ideally have selected views to the landscapes it is interpreting.

Support spaces in the building would include six offices for interagency interpretive staff, a room with a table for working on larger projects and for employee lunches, a storage area for ANHA books and park brochures, and a park library. If the building is two stories, an elevator would provide universal access to the second floor.

Outdoors, the site might provide outdoor interpretation opportunities in the form of signage or large artifacts, such as the whale skull at the current visitor center. Pedestrian circulation that allows visitors to take advantage of the views and that connects to other pedestrian routes is also desirable.

It is anticipated that approximately 9,500 square feet of interior space would be needed. With parking and outdoor spaces, the minimum site size would be roughly one acre.

NPS Administration Building Program

The administration facility would accommodate existing Kenai Fjords National Park staff, and would provide for additional staff that the park either currently needs or anticipates requiring. Permanent staff would have either individual, double, or open office spaces, and seasonal staff would share an open office area. A receptionist's space would be adjacent to central office equipment and supply storage. Support space would include an employee conference and lunch area, employee restrooms with lockers and showers, and a darkroom for developing and printing photographs. The building would also provide separate storage facilities for protection equipment and for curatorial and archival collections. If the building is two stories, an elevator would provide universal access to the second floor. The administration building would require approximately 7,600 square feet.

Storage for boat equipment should be retained near the park boat, which is moored in Seward's small boat harbor.

Forest Service Building Program

The Seward Ranger District of the Chugach National Forest, Region 10, is in need of new district headquarters office and is a potential partner with Kenai Fjords National Park in constructing a new administrative building in Seward. With a staff similar in size to the park's, the Forest Service would require administrative space of approximately 7,700 square feet. This includes 4,900 square feet of offices and 2,800 square feet of support space, such as reception, rest rooms, a computer room, a resource library, an employee area and storage. In such a facility, reception services, a mailroom and copy room, phone system, computer system, and other services could be combined to reduce costs. The Chugach National Forest has submitted a project proposal to the regional office for a new district office to be shared with the park. The project has been approved at the national level.

Site Requirements for Visitor Center and Administration Facilities

During the planning process, criteria were developed to evaluate potential sites for the Seward Visitor Center. These criteria are described below.

Size. The required site size varies with the type of facility. The visitor center site needs to be large enough to accommodate 9,500 square feet of interior visitor center space, adequate space for parking as per city guidelines, and space to develop the landscape setting and outdoor interpretation where appropriate. The NPS administrative site needs to be large enough to accommodate 7,600 square feet of interior administrative space and adequate space for parking, as per city guidelines. A joint National Park Service and Forest Service administrative site needs to be large enough to accommodate 15,300 square feet of interior space, plus parking for personnel from both agencies as per city guidelines. A joint National Park Service and Forest Service administrative building, if combined with the visitor center, would require a site large enough to accommodate 24,800 square feet of interior space, plus parking as per city guidelines.

Access. The visitor center site should be easily accessible to park visitors, who arrive in Seward primarily by automobile, cruise ship, and rail. Because most visitors arrive by private vehicle, the facility needs to be close to the Seward Highway or in the town of Seward. For cruise ship passengers arriving at the visitor center via shuttle bus, a Seward location with bus access is preferable. For those arriving in Seward by rail, proximity to the railroad station just north of the small boat harbor is desired. Many visitors travel to the park fjords by charter boat or by private sailing vessels staged in the small boat harbor.

Through studying visitor transport patterns, it became apparent that the visitor center should be within safe walking distance or convenient shuttle from the small boat harbor.

See maps on pages 27 and 29 showing the layout of Seward and the small boat harbor.

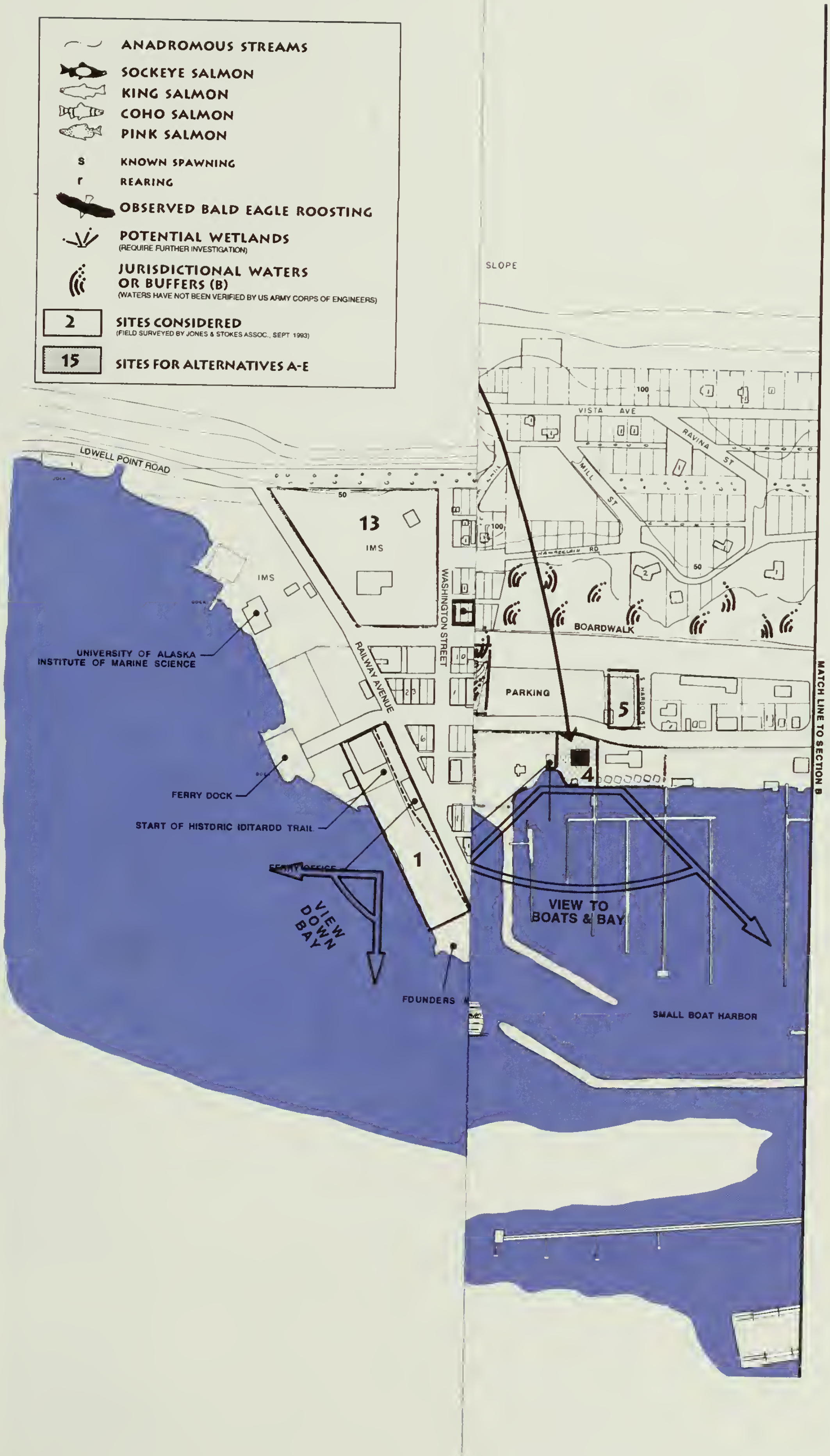
Aesthetic and Interpretive Opportunities. The visitor center needs to have a relationship to its environment, and provide the visitor with a sense of the park's scenic beauty. A view to the water is a necessity, and a view to the mountains is desired.

Environmental Feasibility. The buildings and sites should be in accordance with all regulations and use exemplary planning principles to ensure safety for the visitors, staff and building, and to prevent adverse environmental impacts or costly mitigation. The following considerations were used in assessing environmental feasibility: potential flooding or tsunami; impacts to wetlands, wildlife, and vegetation; potential impacts to traffic, parking, and the surrounding community; and hazardous materials that would require costly removal.

Exit Glacier Visitor Contact Facilities

At the Exit Glacier area, a range of visitor facilities could satisfy needs for visitor contact services. At a minimum, the park needs to retain the current contact station for safety, park ranger operations, and shelter for visitors during severely inclement weather. Visitor projections suggest that a larger facility will be needed; this facility could serve an informational function identical to the existing station, or could add hands-on interpretive displays that would relate to the area. In scoping meetings the public expressed a desire for a new facility to be built in a rustic style, using natural materials harmonious with the surrounding environment.

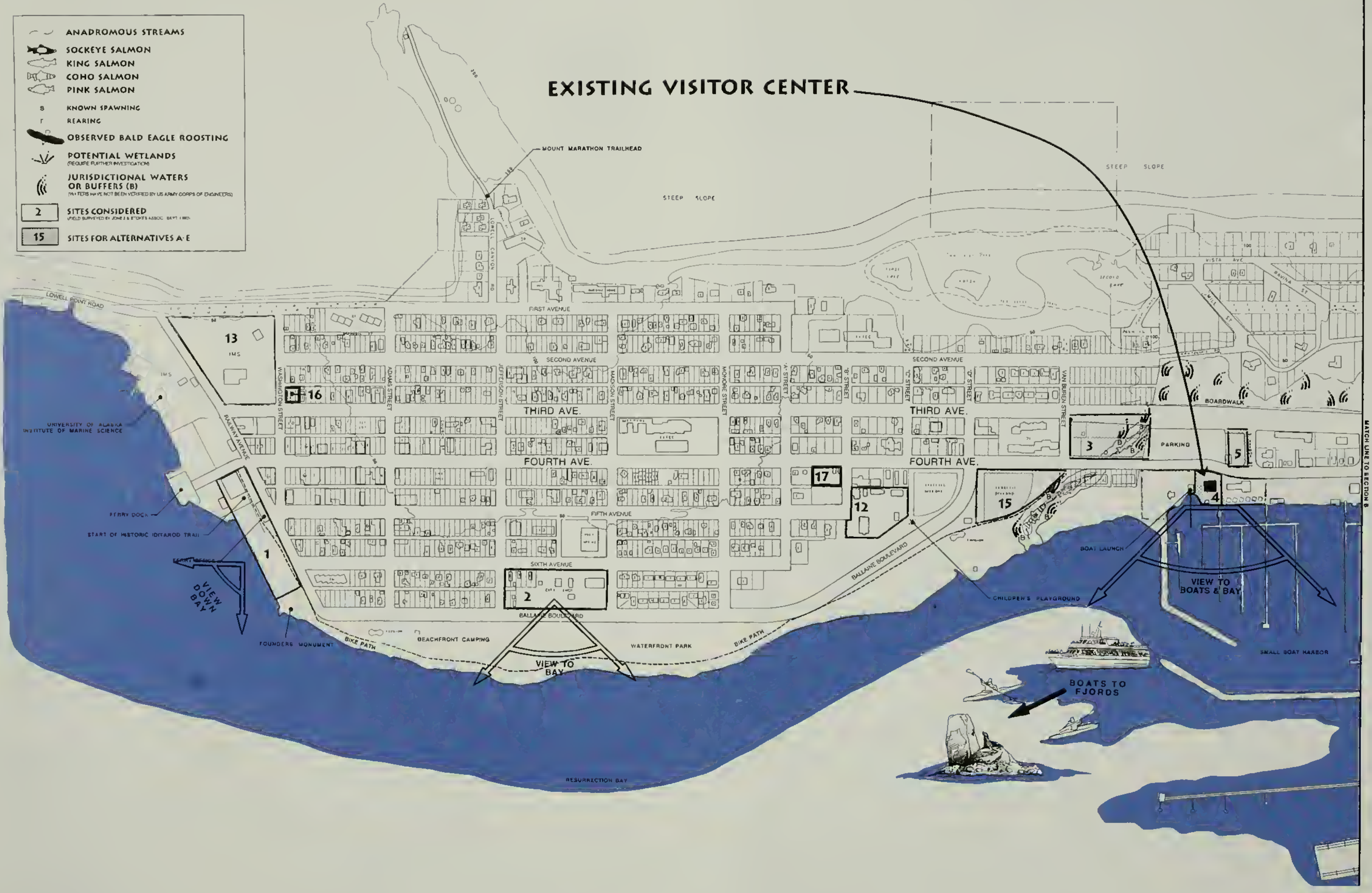
A covered area to accommodate 50 people is needed for group orientation and ranger talks. This area could be a separate pavilion or covered area attached to the visitor contact station.



SECTION A — SEWARD NATURAL RESOURCES AND RESOURCE ADJACENCIES

U.S. DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE
DSC/SEPTEMBER '95/186/20,040

KENAI FJORDS NATIONAL PARK



SECTION A — SEWARD NATURAL RESOURCES AND RESOURCE ADJACENCIES

U.S. DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE
DSC/SEPTEMBER '95/186/20,040

KENAI FJORDS NATIONAL

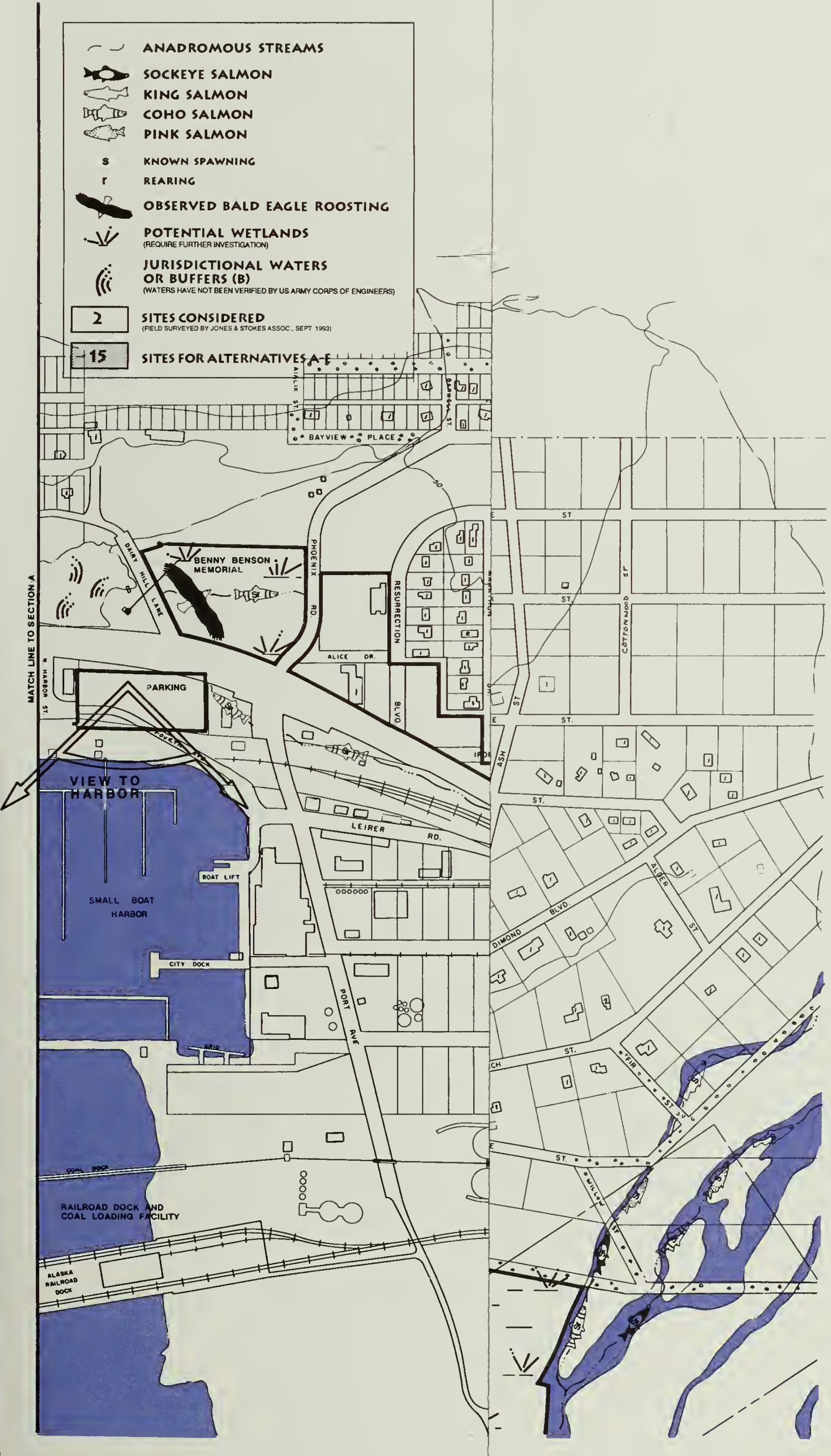
N

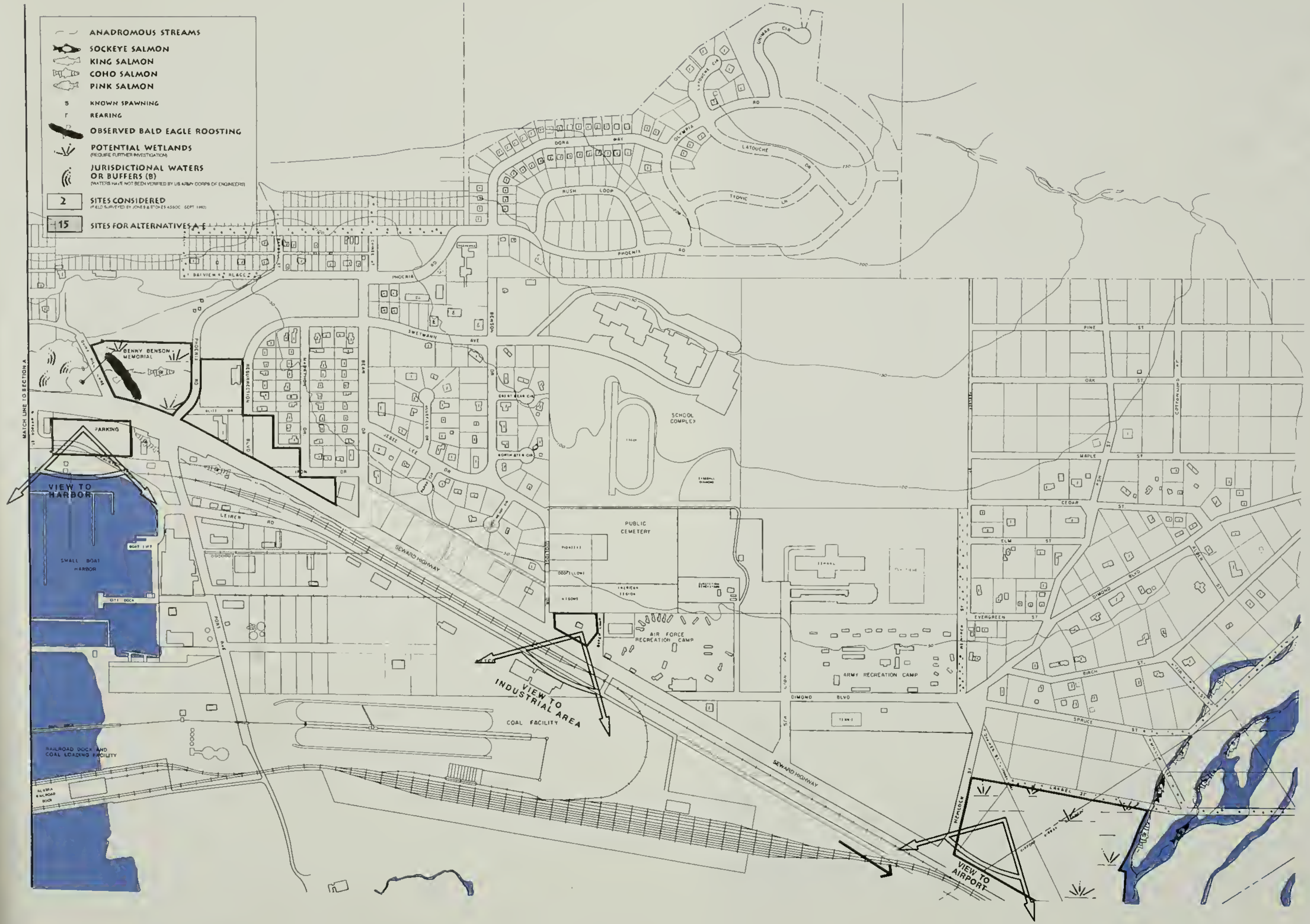
APPROXIMATE SCALE
0 200 400 800 FEET

SECTION B — SEWARD
NATURAL RESOURCES AND RESOURCE ADJACENCIES

U.S. DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE
DSC/SEPTEMBER '95/186/2041

KENAI FJORDS NATIONAL PARK





SECTION B — SEWARD
NATURAL RESOURCES
AND RESOURCE ADJACENCIES
U.S. DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE
DSC/SEPTEMBER '95/186/2041

N

APPROXIMATE SCALE
0 200 400 800 FEET

VISITOR CENTER ALTERNATIVES

Five alternatives have been developed for the visitor center in Seward. The first is a no action alternative. Two alternatives would expand the existing visitor center and provide administration space separately, and two alternatives would combine the visitor center with the administration facility. Of the action alternatives, one proposes an NPS administration facility, and three propose an interagency administration facility. All action alternatives propose a visitor center that would be jointly staffed by personnel from cooperating public agencies.

ELEMENTS COMMON TO ALL VISITOR CENTER ACTION ALTERNATIVES

The visitor center elements and amounts of building space are the same in all action alternatives. All provide enough space for cooperating agencies to staff the lobby, and enough exhibit space to interpret a range of ecosystems. Potential cooperators in the visitor center include Alaska State Parks, the Forest Service, National Marine Fisheries, Alaska Maritime National Wildlife Refuge, and the Seward Chamber of Commerce.

All visitor center action alternatives would provide, at a minimum, parking to meet the Seward parking guidelines for office and public assembly buildings. Each site would provide as much paved parking as it would allow. Long-term parking spaces would be designated for employees, with short and medium-term parking designated for visitors.

To reduce the risk of visitors and personnel to the potential impacts associated with floods, tsunamis, or seismic activity, new construction would comply with local and federal building code requirements pertaining to seismic activity and flood hazards. The National Park Service would prepare a Statement of Findings (SOF) consistent with their floodplain management guidelines. The SOF would select and evaluate the effectiveness of mitigation in managing flood and tsunami hazards. The National Park Service would also maintain emergency warning and evacuation procedures.

In all action alternatives, signage would be placed at the Exit Glacier turn-off, directing visitors to the Seward visitor center.

In all action alternatives, the visitor center and administrative buildings and sites would comply with all requirements for access by the disabled.

Should any land intrusive work (e.g. earth moving for development, geophysical or other subsurface investigation, major landscaping) be necessary during implementation of the selected alternative, these areas would be visually inspected for evidence of any soil and/or groundwater contamination by any pollutants, contaminants or hazardous substances. If such contamination is encountered, appropriate notification remedial action would be taken to ensure compliance with all applicable U. S. Environmental Protection Agency, state, and local government environmental statutes and regulations.

ALTERNATIVE A: NO ACTION

Alternative A is shown in map on page 33.

A no action alternative would retain the modest visitor center and administrative building in Seward's small boat harbor (site 4). There would be no expansion or renovation of the existing visitor center. No additional parking spaces would be provided.

Continued use of existing municipal evacuation and warning policies would reduce potential risks associated with flooding and tsunami hazards.

ALTERNATIVE B: (MINIMUM REQUIREMENTS) EXPAND EXISTING FACILITY FOR VISITOR CENTER (SITE 4) AND CONSTRUCT NEW NATIONAL PARK SERVICE ADMINISTRATION BUILDING AT SITE 5

Alternative B is shown in map on page 34.

In this alternative the existing headquarters and visitor center building would be enlarged from 5,000 to 9,500 square feet. Visitor center areas would be remodeled, and spaces now used for administration would be adapted for visitor services, interpretation, and interpretive staff support areas. The building would provide adequate space to include other agencies in delivering visitor services and interpretation, with an auditorium to seat 100 people, a multipurpose room to hold 50 people, a lobby, and 2,000 square feet of exhibit space.

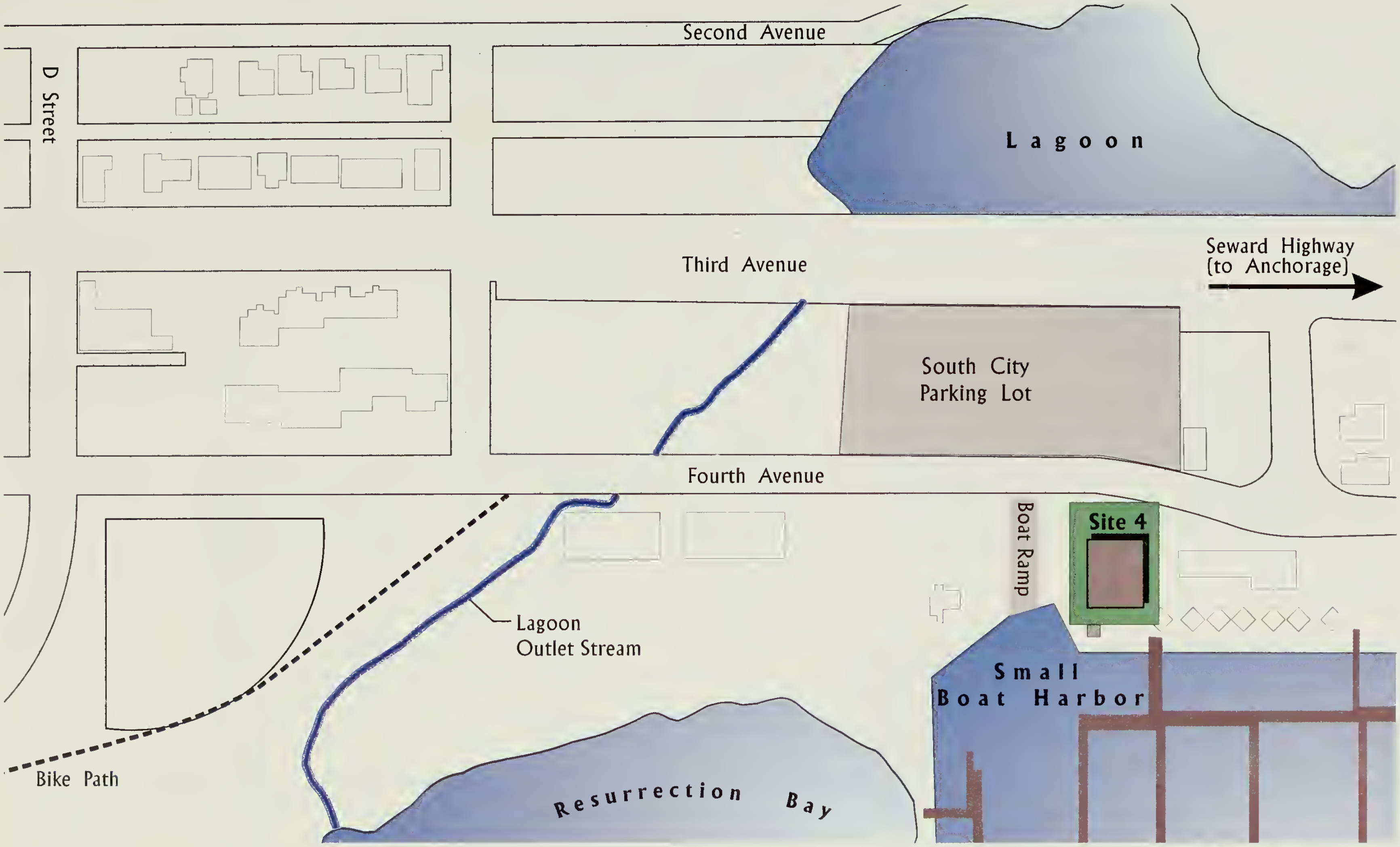
The site is next to the docks where charter boats depart for the fjords, and is near to the rail station and tourist facilities. The site offers fine views of the boat harbor and Resurrection Bay.

While work space for interpretive staff would remain at the visitor center, other NPS administrative offices would be housed in a new, 7,600 square foot facility located across the street from the visitor center (site 5).

Both the visitor center and administration building would be built using a style and materials compatible with the small boat harbor.

The National Park Service would work with the city of Seward to establish a clear, safe pedestrian crossing across Fourth Avenue, connecting the administration building and parking with the visitor center. A bus dropoff zone for two buses would be established in front of the visitor center.

Before demolition for remodeling portions of the existing visitor center, a hazardous waste/substance survey would be conducted.



ALTERNATIVE A — SEWARD
NO ACTION/EXISTING CONDITIONS
NPS VISITOR CENTER/ADMIN. BUILDING

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ALTERNATIVE B/MINIMUM REQUIREMENTS — SEWARD

EXPAND NPS EXISTING VISTOR CENTER SITE 4
NEW ADMINISTRATION BUILDING SITE 5

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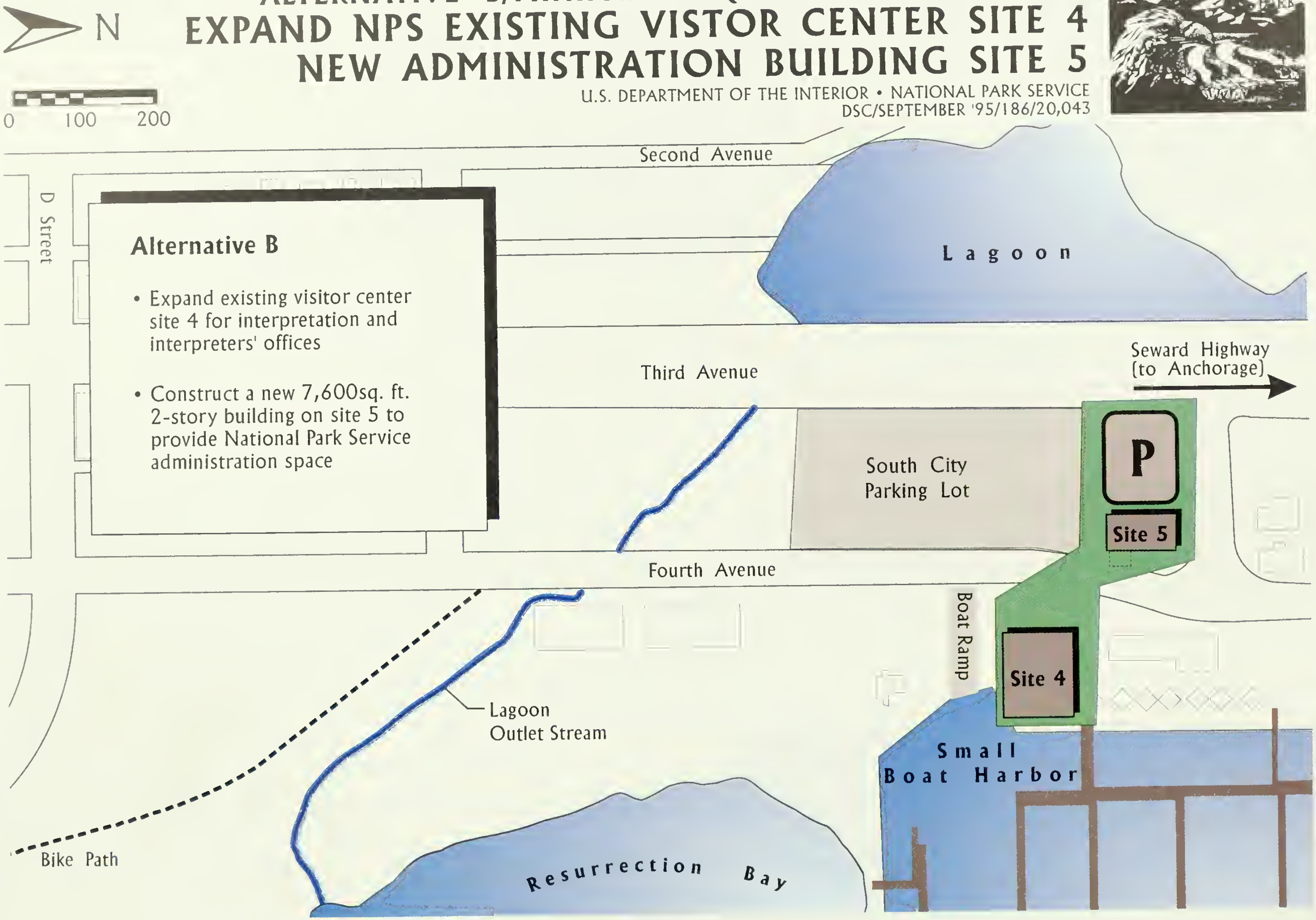


Alternative B

- Expand existing visitor center site 4 for interpretation and interpreters' offices
- Construct a new 7,600sq. ft. 2-story building on site 5 to provide National Park Service administration space

ALTERNATIVE C: EXPAND EXISTING FACILITY FOR VISITOR CENTER (SITE 4) AND CONSTRUCT INTERAGENCY ADMINISTRATION BUILDING AT SITE 3

Alternative C is shown in map on page 36.

As in alternative B, this scenario proposes expansion of the existing visitor center for use as a joint-agency interpretive center. As in alternative B, the building would be enlarged to 9,500 square feet, providing space to orient visitors to the park and other public lands and to interpret a range of ecosystems. The visitor center site is next to the docks where charter boats depart for the fjords, and is near the rail station and tourist facilities. The site offers fine views of the boat harbor and Resurrection Bay.

In this alternative a new administration building would house the Seward District Office of Chugach National Forest as well as NPS administrative offices. These offices would be located approximately 800 feet south of the visitor center (on site 3) in a two-story, 15,300 square foot building.

Both the visitor center and administration building would be built using a style and materials compatible with the small boat harbor.

There is a city-maintained sidewalk on the west side of Fourth Avenue between the visitor center and the administration building site. As the visitor center and the parking and administration building site are located on opposite sides of the street, the National Park Service would work with the city of Seward to establish a clear, safe pedestrian crossing of Fourth Avenue to connect the facilities. A bus dropoff zone for two buses would be established in front of the visitor center.

The administration building site features a lagoon outlet stream at its northern end. The site would be filled one to two feet above existing grade to reduce the potential of flooding from the outlet stream. A 25 to 50 foot buffer planted with native species would be maintained between the edge of the building and parking lot to the center of the channel. Surface water from the parking and roof areas would be directed into a biofiltration swale, or equivalent measures taken, to help remove sediments and pollutants before entering the outlet stream. Erosion control measures would be implemented during construction to prevent siltation of the outlet stream.

Before demolition for remodeling portions of the existing visitor center, a hazardous waste/substance survey would be conducted.

ALTERNATIVE D: CONSTRUCT NEW VISITOR CENTER AND INTERAGENCY ADMINISTRATION BUILDING AT SITE 3

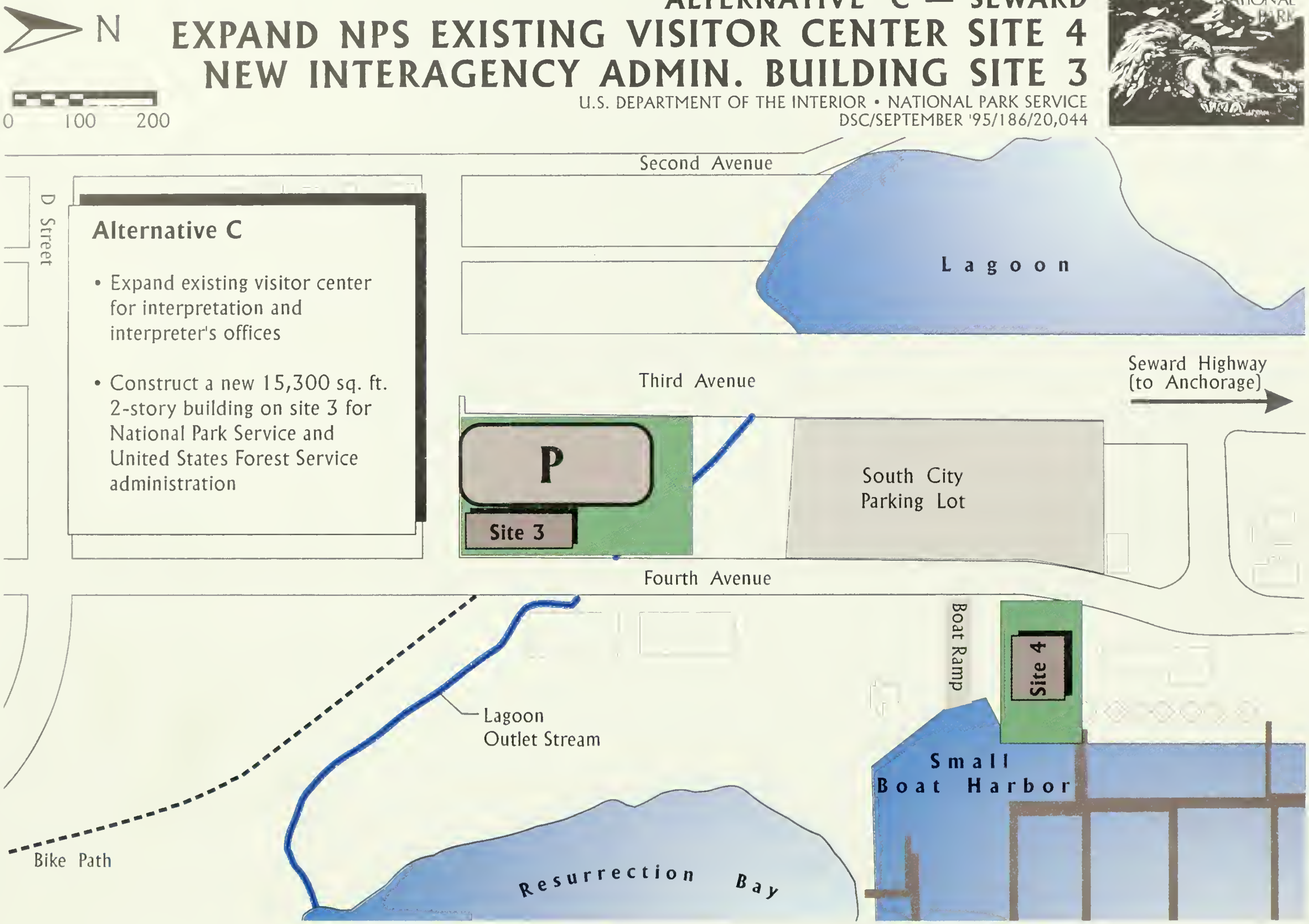
Alternative D is shown in map on page 37.

This alternative proposes construction of a two-story, 24,800 square foot building on site 3. Visitor facilities would be similar in size and function to those described for alternatives B and C (9,500 square feet), allowing cooperating agencies to jointly provide visitor services and interpretation.

ALTERNATIVE C — SEWARD

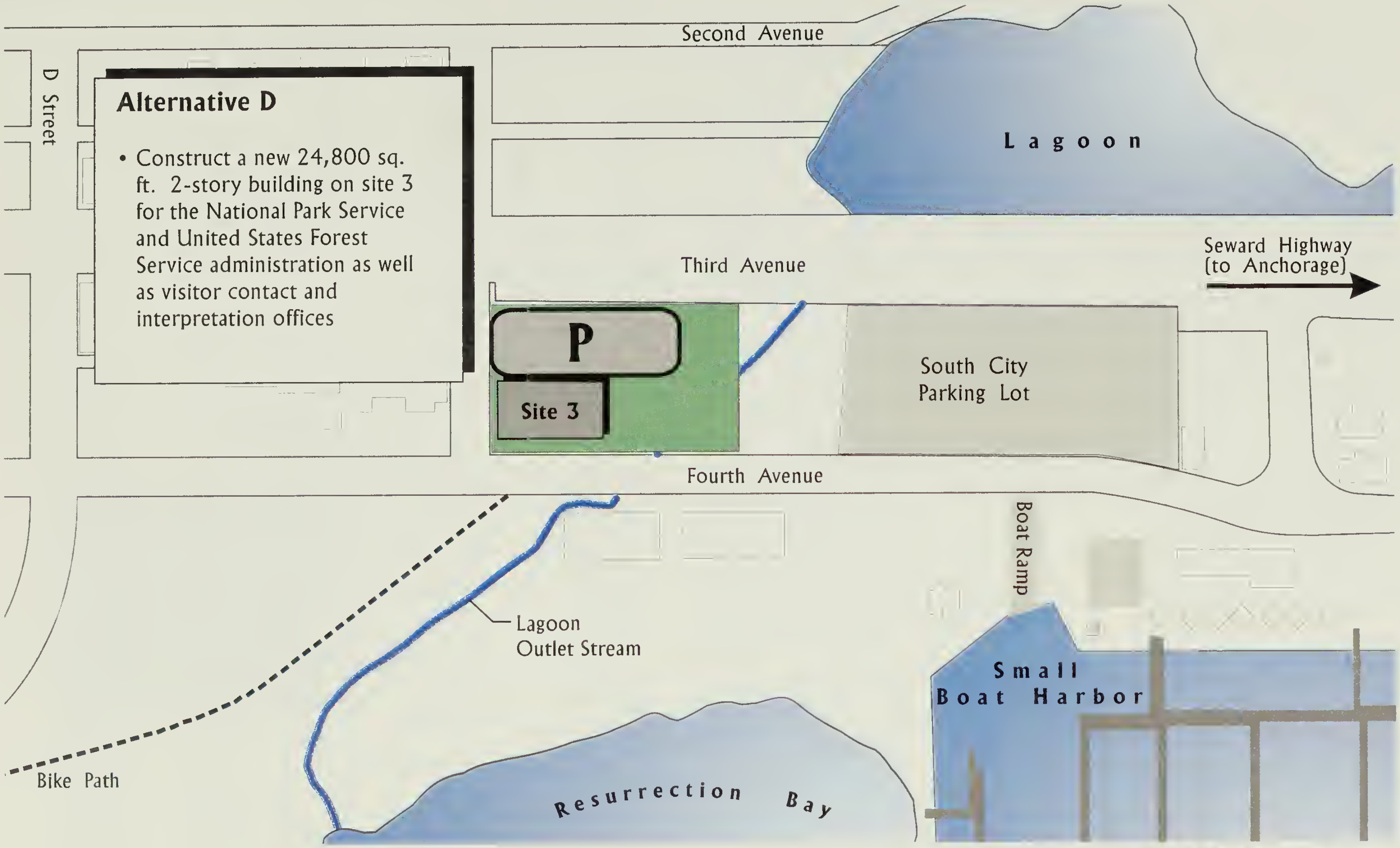
EXPAND NPS EXISTING VISITOR CENTER SITE 4
NEW INTERAGENCY ADMIN. BUILDING SITE 3

U.S. DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE
DSC/SEPTEMBER '95/186/20,044



Alternative C

- Expand existing visitor center for interpretation and interpreter's offices
- Construct a new 15,300 sq. ft. 2-story building on site 3 for National Park Service and United States Forest Service administration



Alternative D

- Construct a new 24,800 sq. ft. 2-story building on site 3 for the National Park Service and United States Forest Service administration as well as visitor contact and interpretation offices

ALTERNATIVE D — SEWARD

NEW NPS VISITOR CENTER/INTERAGENCY ADMINISTRATION BUILDING SITE 3

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KENAI FJORDS NATIONAL PARK

The remaining 15,300 square feet would be used for administrative functions, shared by Kenai Fjords National Park and the Seward District Office of Chugach National Forest. While the offices for each agency would be distinct, the reception area, conference room, employee lunchroom, and computer space could be shared.

The site offers views to the bay, but they are more limited than views from the other visitor center sites. The building could be oriented to take advantage of views towards the bicycle trail and creek outlet to the southeast, as these are likely to remain unobstructed. To reduce the scale and visual impact of the structure, the building massing would be broken into two or more parts. The facility would use a style and materials compatible with the small boat harbor.

This site is a two-block walking distance from the south end of the small boat harbor, with city-maintained sidewalks between the site and the harbor. The park would work with the city of Seward to establish a clear, safe pedestrian crossing of Fourth Avenue to connect the facility to harbor activities. A bus dropoff zone for two buses would be established in front of the facility.

The site features a lagoon outlet stream at its northern end. This fish-bearing stream could be used for interpretation associated with the visitor center. A 25 to 50-foot buffer planted with native species would be maintained between the edge of the building and parking lot to the center of the channel. The site would be filled one to two feet above existing grade to reduce the potential of flooding from the outlet stream. Surface water from the parking and roof areas would be directed into a biofiltration swale, or equivalent measures taken to help remove sediments and pollutants before entering the outlet stream. Erosion control measures would be implemented during construction to prevent siltation of the outlet stream.

ALTERNATIVE E: CONSTRUCT NEW VISITOR CENTER AND INTERAGENCY ADMINISTRATION BUILDING AT SITE 15

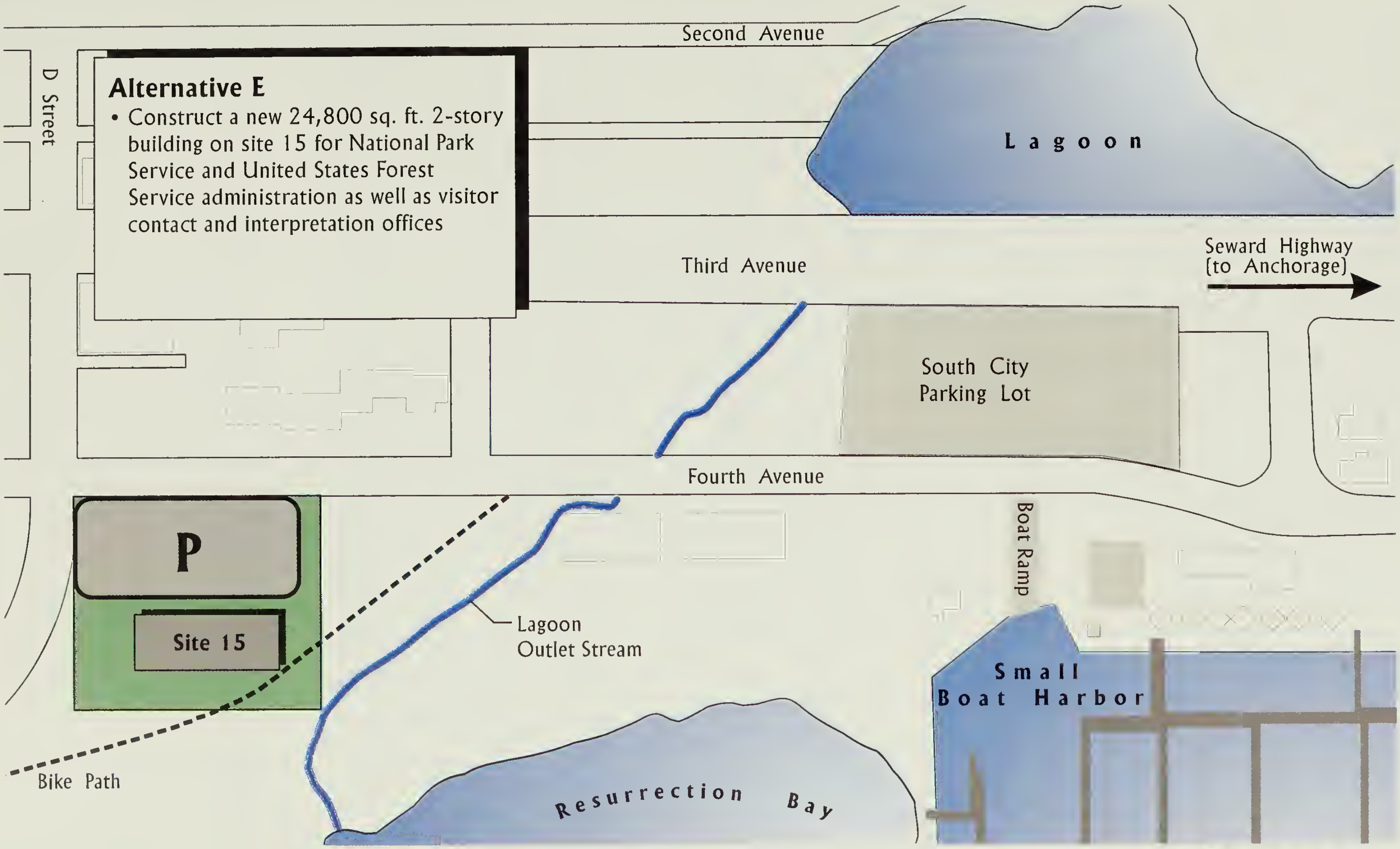
Alternative E is shown in map on page 39.

This alternative proposes construction of a two-story, 24,800 square foot building on site 15. Visitor facilities would be similar in size and function to those described for alternatives B, C, and D, and would also allow cooperating agencies to jointly provide visitor services and interpretation.

The remaining 15,300 square feet would be used for administrative functions, shared by Kenai Fjords National Park and the Seward District of Chugach National Forest. While the offices for each agency would be distinct, reception, conference, employee lunchroom, and computer space could be shared.

The site offers panoramic views to Resurrection Bay and the city park. To reduce the scale and visual impact of the structure, the building massing would be broken into two or more parts.

The walking distance to this site from the south end of the small boat harbor is approximately three blocks (1,200 feet,) and presently without sidewalks. The National Park Service would encourage the city of Seward to create a pedestrian route from the small boat harbor, and a safe pedestrian crossing of the existing boat



Alternative E

- Construct a new 24,800 sq. ft. 2-story building on site 15 for National Park Service and United States Forest Service administration as well as visitor contact and interpretation offices

ALTERNATIVE E — SEWARD

NEW NPS VISITOR CENTER/INTERAGENCY ADMINISTRATION BUILDING SITE 15

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PARK

launch. A bus dropoff zone for two buses would be established in front of the facility. The site is connected to Seward waterfront parks by a bicycle and pedestrian trail.

The site is bordered by the municipal trail and a lagoon outlet stream at its northeast and eastern boundaries. The site would be filled two to three feet above existing grade to reduce the potential of flooding from the outlet stream and coastal waters. A retaining wall would be constructed at the northeast end to resolve the difference between the new grade and the existing grade of the bicycle path and stream edge. Surface water from the parking and roof areas would be directed into a biofiltration swale, or equivalent measures taken, to remove sediments and pollutants before entering the outlet stream. Erosion control measures would be implemented during construction to prevent siltation of the outlet stream.

The fish-bearing outlet stream could be used for interpretation associated with the visitor center. A 25 to 50-foot buffer would be maintained between the edge of the building and parking lot to the center of the channel. Native species would be planted on the NPS portion of the buffer.

The National Park Service would assist the city in identifying a site for a replacement ballfield.

ALTERNATIVES CONSIDERED BUT REJECTED

In the scoping workshops with the public and park staff, Exit Glacier was considered as a potential location for the park's primary visitor center. This option was eliminated early in the planning process due to the distance from the point of departure to the park fjords, difficulty of winter access and potential environmental impacts to the Exit Glacier area.

In the preliminary alternatives phase the park and public evaluated three alternatives for sharing facilities with other institutions, at nine possible locations. One alternative was to share an interpretive facility with Alaska Sea Life Center at the Center site. Public response regarding partnering with Alaska Sea Life Center (preliminary alternative B) was almost unanimously negative, and this alternative and site 1 were rejected. Site 13 was considered as a potential administration site if the visitor center were at the Alaska Sea Life Center, and it too was eliminated with this alternative.

A site along the Seward Highway (site 11) was proposed for construction of a visitor orientation center and shuttle parking area if the visitor center functions were to be located with Alaska Sea Life Center. While the concept of a separate orientation center was eliminated, the site may be a potential shuttle staging area in the future.

While some supported an NPS-only facility (preliminary alternative A), this alternative was not felt to be as economical as a joint facility. Most public respondents favored a joint agency facility, especially for purposes of orientation.

OTHER SITES CONSIDERED BUT REJECTED

All sites considered to date can be found on Figure 2, Natural Resources and Resource Adjacencies maps.

In the preliminary alternatives newsletter questionnaires that were returned, the public preferred visitor center sites that were located in Seward's small boat harbor. Little support was given for site 2, the city shops, principally because of its distance from other activity and proximity to residential neighborhoods. The planning team expressed concern as well about environmental clean-up costs that might be incurred due to the nature of prior uses. This site was eliminated from further consideration. Similar concerns were expressed regarding the state shops (site 12) and it too was rejected as a visitor center site. Parts of site 4, the present sites of the harbormaster's office and the Alaska Treks and Voyages office, were eliminated due to city policies regarding waterfront uses for office space and, in the latter, safety concerns about pedestrians crossing boat launch traffic.

Other sites were considered by the planning team in the preliminary alternatives phase but were not included in the preliminary alternatives. These were:

- site 6 in Seward's small boat harbor, eliminated because it is needed for parking
- site 7 near the Benny Benson Memorial, eliminated because it is a wetland
- site 8 along the Seward Highway, rejected because it is too small
- site 9 along the Seward Highway, considered as a shuttle site but rejected because it has some wetland qualities and
- site 10, on the Seward Highway at the Exit Glacier turnoff, considered as a shuttle site but eliminated because it is within a 100-year floodplain and is partially a wetland.

Sites owned by Native Alaskan individuals or organizations were identified and considered for visitor center facilities, as required under Alaska National Interest Lands Conservation Act (ANILCA) Section 1306 (see Appendix E for legislation). A site at the intersection of Third and Washington Streets (site 16) in Seward was too small for the required building program. A site at the intersection of Fourth and B (site 17) was too small, too far from the small boat harbor, and lacking in views of the water. The remaining two sites, one on the Seward Highway (site 18) and one located across the bay (site 19), were too far from the focus of visitor activity in Seward.

TABLE 1. VISITOR CENTER ALTERNATIVES

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Interpretation and Orientation Center Agencies	National Park Service	National Park Service and possibly Forest Service and state parks	National Park Service and possibly Forest Service and state parks	National Park Service and possibly Forest Service and state parks	National Park Service and possibly Forest Service and state parks
Location	Existing location (site 4)	Existing location (site 4)	Existing location (site 4)	Site 3	Site 15
Size	2,400 sq ft visitor space	Expand existing facility from 5,000 to 9,500 sq ft (includes interpreters' offices)	Expand existing facility from 5,000 to 9,500 sq ft (includes interpreters' offices)	9,500 sq ft (includes interpreters' offices)	9,500 sq ft (includes interpreters' offices)
Administration Agencies	National Park Service only	National Park Service only	National Park Service and Forest Service	National Park Service and Forest Service	National Park Service and Forest Service
Location	Site 4	Site 5	Site 3	Site 3	Site 15
Size	2,600 square feet.	7,600 square feet	15,300 square feet	15,300 square feet	15,300 square feet

EXIT GLACIER ALTERNATIVES

ELEMENTS COMMON TO ALL EXIT GLACIER ACTION ALTERNATIVES

In both action alternatives (B and C), improvements would be made to the trail system at Exit Glacier. Improvements to the interpretive nature trail would be made in order to provide a more visible alternate return route to the parking area. The river trail, now overgrown, would be re-constructed between the campground and the visitor contact station. The upper trail, once a loop but now incomplete because the glacier has covered part of it, would be realigned to provide a one-way loop trail at the glacier's edge. This realignment might include bridging of a small chasm and possibly cutting into the rock face for the trail. A guardrail would be installed for safety, and construction techniques would be designed to have minimal impacts to the surrounding environment.

Both alternatives provide for a new, barrier-free bridge crossing a tributary of Exit Creek on the main trail to the glacier. Construction of the bridge would be designed to avoid impacts to the creek or its banks. The National Park Service would further consult with the U. S. Army Corps of Engineers during final bridge design and construction to determine any regulatory requirements.

Winter use would not change in any of the alternatives. Current winter uses include nordic skiing, snowshoeing, mushing, and snowmobiling. When budget and time allow, the road is groomed for nordic skiing. The park's public use cabin is rented out. Presently only small-scale, non-motorized commercial tours are offered, but current park policy does not prohibit other types of commercial activity. These activities would continue, and other activities would be allowed.

To reduce potential impacts to vegetation from increased foot traffic associated with the expected increase in visitation, alternatives B and C would include the following management and protective measures:

- The park would (1) determine the desired vegetation conditions along hiking trails, (2) determine acceptable levels of use along the trails, and (3) manage the resource and trail use to meet the desired resource condition. Management might include trail closures to minimize trail deterioration during periods such as early summer when trails are muddy and most susceptible to damage.

- The park would conduct annual trail maintenance to minimize trail deterioration, vegetation loss, soil erosion, and trail widening.

To reduce impacts associated with facilities construction, damaged areas would be revegetated with native species.

To reduce the potential for contact between humans and bears or moose, alternatives B and C would include the following management practices:

- The park would maintain bear-proof garbage containers where necessary, educate visitors about bear and moose behavior, and post information about how people can protect themselves if a confrontation occurs.

- The park would temporarily close trails if aggressive bears or sows with cubs are known to be in the area.

- The walk-in campground would have centralized cooking facilities and food storage boxes to reduce potential for the habituation of bears to humans and minimize the opportunities for bears to obtain human food.

- Trail segments would be maintained by clearing brush within the designed trail width to help maximize sight distance and reduce chances of human and bear/moose encounters.

To reduce the risk of flash flood hazards, the park would maintain up-to-date evacuation and flood warning procedures.

To reduce the risk of park visitors being injured by falling ice from Exit Glacier, the rope barrier and warning signs would be maintained at the end of the glacier.

To minimize construction impacts from new parking areas and visitor contact facilities in both action alternatives, a botanist and wildlife biologist would be included in the design team to help select sites and construction methods prior to final siting and construction.

In both action alternatives, new construction would comply with all requirements for access by the disabled.

Should any land intrusive work (e.g. earth moving for development, geophysical or other subsurface investigation, major landscaping) be necessary during implementation of the selected alternative, these areas would be visually inspected for evidence of any soil and/or groundwater contamination by any pollutants, contaminants or hazardous substances. If such contamination is encountered, appropriate notification remedial action would be taken to ensure compliance with all applicable U. S. Environmental Protection Agency, state, and local government environmental statutes and regulations.

ALTERNATIVE A: NO ACTION

Alternative A is shown in map on page 45.

At present, the visitor experience at Exit Glacier is primarily a natural, personal encounter with the glacier within a low-key, mostly rustic developed area. Visitors generally drive or are bused to the area. Most visitors walk the main trail to the interpretive kiosk, then to the outwash plain and glacier, and return, staying for just under an hour. The length of paved accessible trail terminates at the interpretive kiosk, approximately half the distance to the outwash plain, immediately before a non-accessible bridge crossing a tributary of Exit Creek. The accessible trail and kiosk provide vistas to the glacier but do not allow the visitor to see the landscape of the outwash plain.

The expanse of space on the outwash plain provides an uncrowded experience. Rope barriers and signage restrict access to the glacier and warn visitors of the dangers of falling ice. Some visitors take the nature trail and stop at the visitor contact station on their return from the glacier, though both of these facilities are under-used. Harding Icefield hikers access the trailhead via the main trail, staying from two to ten hours, depending on the length of trail they walk.

On approximately twelve days during the peak season, the parking area fills, and visitors park along the road. Bus traffic further compounds parking and circulation problems within the poorly designed parking area. Five vault toilets next to the parking area are available to the public. Many visitors complain about the toilet odors.

Rangers are generally present on the trail or outwash plain during the day to inform visitors about potential natural hazards, such as bear and moose, falling ice, flash floods, swift-moving cold water, and inclement weather. With the no action alternative, these management practices would continue.

Current trail management measures include annual maintenance, hardening of trails, rerouting trails at sensitive areas, revegetating exposed areas, and trail closures when they are most susceptible to damage. Current bear and moose management measures include bear-proof garbage cans, posted information about safety measures, and temporary trail closures. These management measures would continue in the no action alternative.

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ALTERNATIVE A — EXIT GLACIER

NO ACTION/EXISTING CONDITIONS

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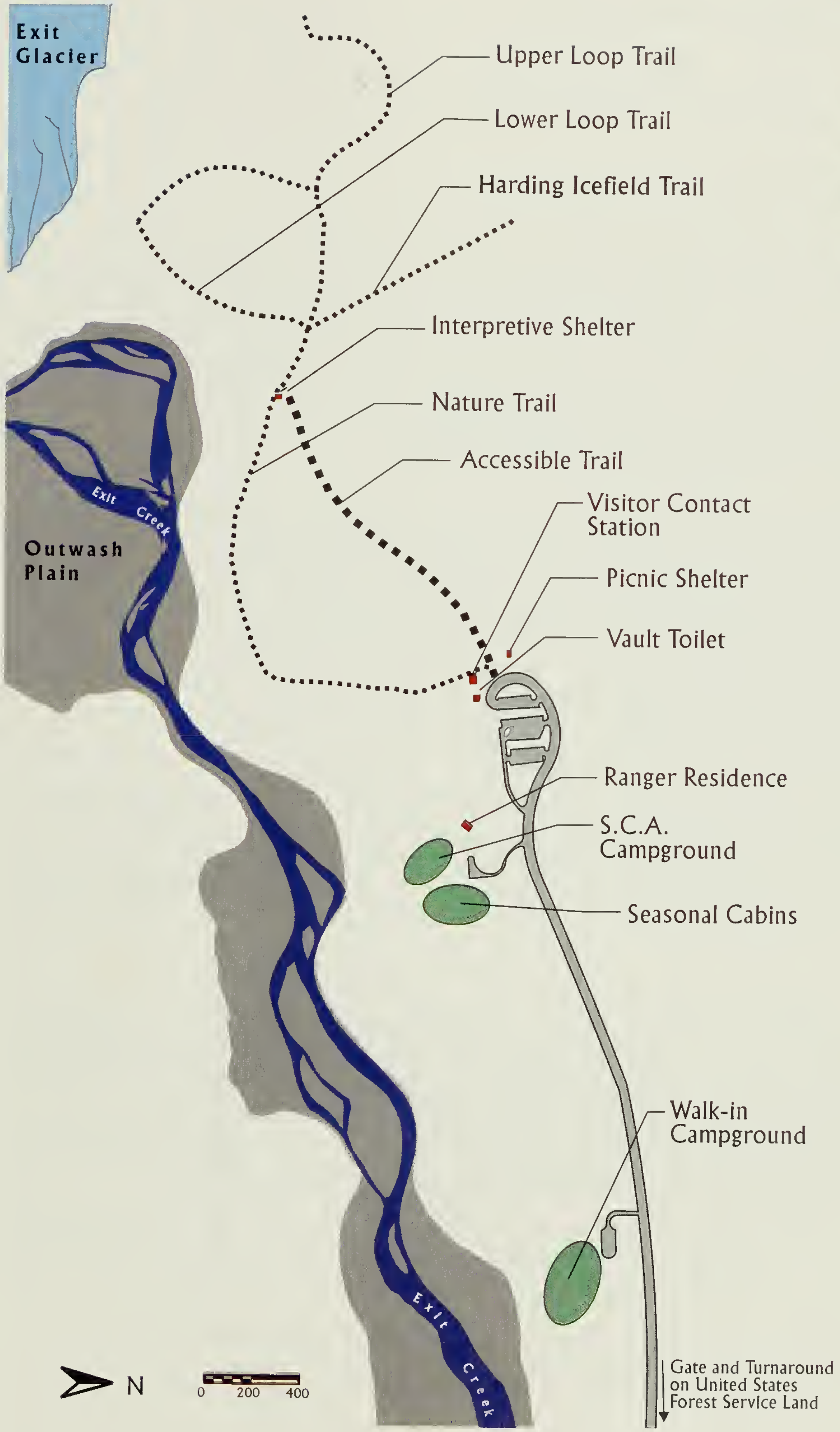

Legend

- •••• Trail
- ■■■ Accessible Trail

ALTERNATIVE B: MINIMAL DEVELOPMENT

Alternative B is shown in map on page 47.

Visitor Experience and Access

This alternative would offer the visitor an experience similar to the existing one: a natural, personal encounter in a setting on the edge of a wilderness. The alternative would improve existing circulation through the parking area for cars, buses, and pedestrians. The parking area capacity would be slightly expanded from fewer than 80 to 85-90 vehicles through improvements to stall marking and the addition of four bus dropoff and parking spaces. Most parking would remain within the existing parking area footprint. Dust palliatives for the gravel road and parking surface would be used to reduce road dust in the air, if environmentally acceptable products can are available. Biofiltration swales would be used to treat storm drainage from the parking area.

Whenever the parking area reached capacity, visitors would be turned away. A sign would be placed at the turnoff to Exit Glacier Road informing the public when the parking area is full. An elective, privately operated shuttle would be allowed to transport visitors during these peak surges as well as at other times. A gate and turnaround before the Resurrection River bridge would be used to control vehicle access when the parking area is full, as well as for winter closure.

Visitor Contact Facilities

The alternative calls for relocating the visitor contact station (the existing building or a new one of similar size) closer to the paved main trail so that it would be more visible to visitors. Care would be taken in locating the facility so that it does not block views of the glacier from the beginning of the main trail.

Trails

The accessible portion of the main trail would be extended with a new bridge over the creek, to an overlook with views of the glacial toe and the outwash plain. The accessible trail would be built of finely crushed gravel (possibly set into a subsurface frame if additional stabilization is required), in order to keep the surface level and smooth yet retain the natural feeling of the trail. The gravel would be native material to blend in with the surrounding surfaces, and grades would be smoothed to meet existing ground with minimal disturbance. Other trail improvements, identical to those in alternative C, have been outlined above.

Sanitary Facilities

Four additional vault toilets and improvements to the existing vault toilets would be provided. During the design phase alternative technologies for sanitary facilities would be studied and evaluated.

ALTERNATIVE B — EXIT GLACIER
MINIMUM DEVELOPMENT

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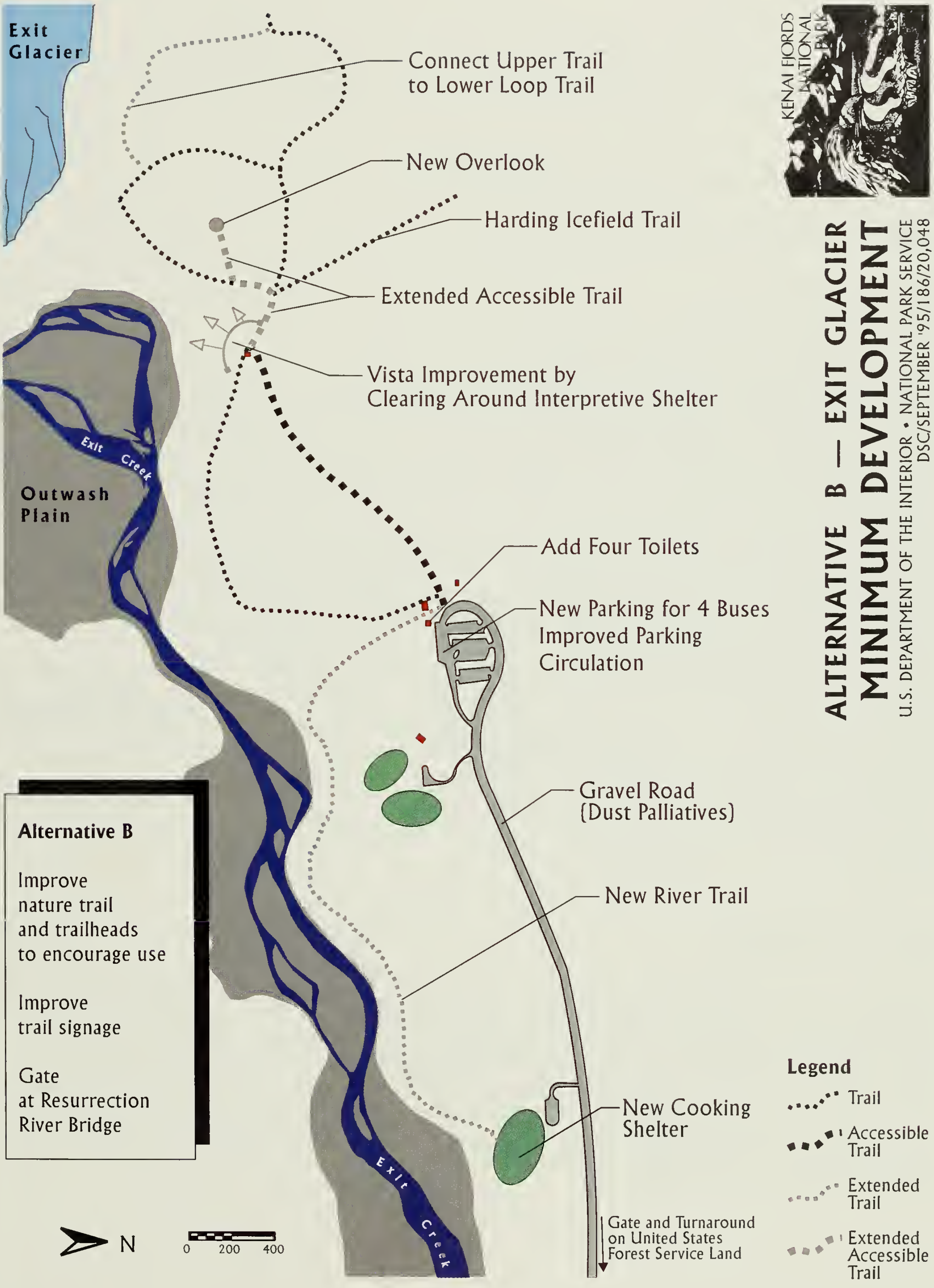
DSC/SEPTEMBER '95/186/20,048


KENAI FJORDS NATIONAL PARK
Exit Glacier
Connect Upper Trail to Lower Loop Trail
New Overlook
Harding Icefield Trail
Extended Accessible Trail
Vista Improvement by Clearing Around Interpretive Shelter
Exit Creek
Outwash Plain
Add Four Toilets
New Parking for 4 Buses
Improved Parking Circulation
Gravel Road (Dust Palliatives)
New River Trail
New Cooking Shelter
Gate and Turnaround on United States Forest Service Land
Exit Creek
N
0
200
400
Legend
Trail
Accessible Trail
Extended Trail
Extended Accessible Trail

Alternative B

Improve nature trail and trailheads to encourage use

Improve trail signage

Gate at Resurrection River Bridge

Campground

A cooking shelter providing centralized cooking facilities and food storage would be constructed at the walk-in campground.

ALTERNATIVE C: MODERATE DEVELOPMENT

Alternative C is shown in map on page 49.

Visitor Experience and Access

This alternative would offer the visitor a slightly more populated experience with additional facilities and increased capacity. The parking area capacity for private vehicles would be expanded by 50%, and six bus parking spaces with a bus dropoff area would be provided in a separate designated lot. The road and parking would be paved from the Resurrection River Bridge. Biofiltration swales would be used to treat storm drainage from the parking and bus dropoff areas.

When the park would find this expanded parking area to be at full capacity more than 10% of the season, (or another threshold determined to be acceptable), a concessioner-operated shuttle system would be initiated. This shuttle would be mandatory only during peak times of the high-use season (for example, 10 AM to 6 PM, June, July and August weekends; actual times would be determined by visitor patterns). Private vehicles would still be allowed earlier and later in the day and in lower-use seasons. Signs informing the public when the shuttle would be mandatory would be placed at the turnoff to Exit Glacier Road and at the visitor center in Seward. A gate and turnaround before the bridge would allow controlled access during mandatory shuttle periods and in winter. Prior to instituting the mandatory shuttle, use of an elective shuttle would be encouraged, which might postpone implementation of the mandatory shuttle. A carrying capacity study would be prepared before the shuttle system would be instituted. Carrying capacity would be based on the desired visitor experience and on impacts to park resources. A shuttle system analysis can be found in Appendix F.

Visitor Contact Facilities

In this alternative a new visitor contact station would be constructed. This facility would be approximately 1,500 square feet and would house hands-on interpretive artifacts, books and resource information, emergency and safety equipment, and storage for maintenance supplies and equipment. A covered porch and/or pavilion would provide outdoor gathering space for group interpretation. In locating the facility, care would be taken to avoid blocking views of the glacier from the beginning of the main trail, and views of the area from the Harding Icefield Trail would be taken into consideration. The facility would be sited to minimize grading and impacts to vegetation.

ALTERNATIVE C — EXIT GLACIER
MODERATE DEVELOPMENT

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DSC/SEPTEMBER '95/186/20,049

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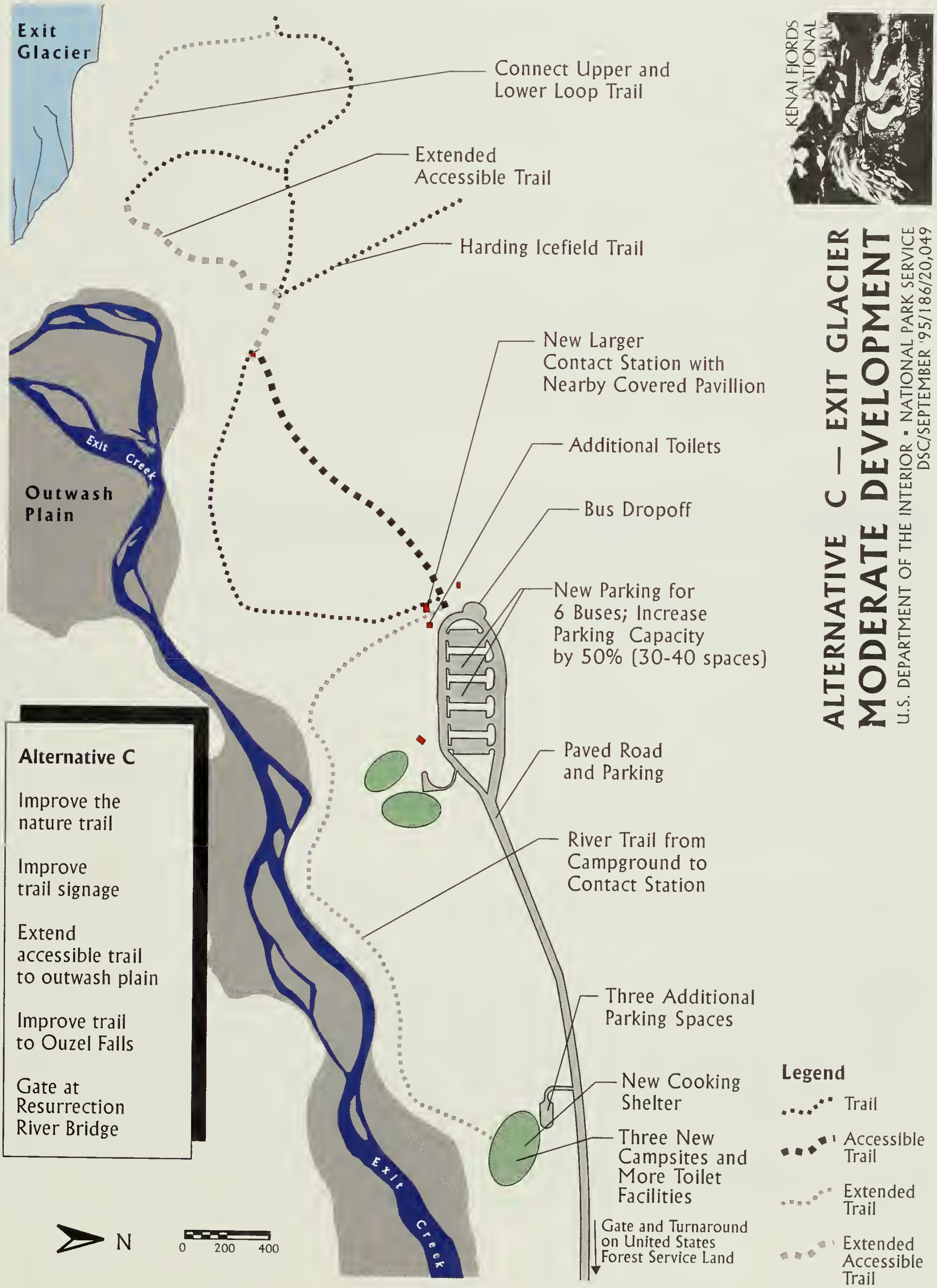

Exit Glacier
Connect Upper and Lower Loop Trail
Extended Accessible Trail
Harding Icefield Trail
New Larger Contact Station with Nearby Covered Pavillion
Exit Creek
Additional Toilets
Outwash Plain
Bus Dropoff
New Parking for 6 Buses; Increase Parking Capacity by 50% (30-40 spaces)
Paved Road and Parking
River Trail from Campground to Contact Station
Three Additional Parking Spaces
New Cooking Shelter
Three New Campsites and More Toilet Facilities
Exit Creek
Gate and Turnaround on United States Forest Service Land
N
0
200
400
Legend
Trail
Accessible Trail
Extended Trail
Extended Accessible Trail

Alternative C

Improve the nature trail

Improve trail signage

Extend accessible trail to outwash plain

Improve trail to Ouzel Falls

Gate at Resurrection River Bridge

Trails

Trail improvements would be similar to alternative B, including a river trail from the walk-in campground to the visitor contact station, realignment of the upper trail to provide a loop, and improvements to the nature trail to provide a more visible alternate return route. In addition, the paved main trail would be made accessible to the outwash plain. It would include a new barrier-free bridge over the creek and would use gravel (with the possibility of additional subsurface support) as in alternative B, but be extended further down the slope to the edge of the outwash plain. A route would be selected that requires minimal grading. Some filling and rock retaining walls would be required to create trail grades that are accessible; native rock and gravel would be to blend in with the surrounding environment.

In this alternative the currently precarious spur trail to Ouzel Falls would also be upgraded. A trail with wider tread and safety barriers would be constructed, requiring filling with retaining walls or cutting into the hillside. Construction techniques would be designed to have minimal impacts to the surrounding environment, and native materials would be used to harmonize with the surrounding environment.

Sanitary Facilities and Utilities

Six new self-contained toilets would be added, and improvements to the existing vault toilets would be made. Power generated on-site (e.g. solar or wind) would be considered for lighting. During the design phase, power generation through alternative energy sources and alternative technologies for sanitary facilities would be studied and evaluated. At that time potential impacts and corresponding mitigation would be evaluated.

Campground

Alternative C provides for slight expansion of the existing walk-in campground, which currently has nine campsites, nine parking spaces, and two vault toilets. Three new campsites, three additional parking spaces, a cooking shelter, and two new toilets would be provided.

ALTERNATIVES CONSIDERED BUT REJECTED

The park and public evaluated four alternatives for Exit Glacier in the preliminary alternatives phase, including the no action alternative. Preliminary alternative A proposed a more primitive experience at Exit Glacier that restricted visitor numbers to an established threshold. It included removal of the visitor contact station, removal of the public use cabins, replacement of the asphalt trail with an accessible gravel trail, and dispersal of the public with more trails, including a trail to Paradise Valley. Winter use would have restricted snow machines. Public support of this more primitive alternative was very limited, with many comments in opposition to restricting access and removing facilities. In addition, it was felt that wildlife baseline information would be needed before consideration could be given to a trail in Paradise Valley. This alternative was therefore eliminated from further consideration.

Preliminary alternative B proposed an additional overflow parking area and alternate access trail to the glacier, and vista clearing along the main trail, all of which were dropped from the alternative. The remainder of the alternative is similar to alternative B as described above; however, the additional parking area allowed a greater number of visitors to use the area at peak times than would be possible in the current alternative B. The alternative did not include reconstruction of the upper trail.

Preliminary alternative C proposed concessions in a new visitor contact station, and clearing for vistas from the main trail, both concepts which were dropped from further consideration. It contained two options, one which used a mandatory shuttle that would allow visitation growth but limit the parking area (C1), and the other that used doubling of the parking area to allow visitation growth (C2). Support for a mandatory shuttle was divided, with some stating that it was necessary to protect the resources and scenic values of the area, and others indicating that they would not be willing to use it. The new alternative C is essentially a combination of C1 and C2, with the parking area enlarging but not doubling, thereby postponing the date when a mandatory shuttle system would be needed. Other aspects of preliminary alternative C have been retained, as described above.

TABLE 2. EXIT GLACIER ALTERNATIVES

	Alternative A: No Action	**Alternative B: Minimal Development**	**Alternative C: Moderate Development**
Visitor Experience	Natural setting at the edge of wilderness, becoming crowded	Natural setting at the edge of wilderness	Populated, interpretive experience at the edge of wilderness
Facilities Parking and Roads	-Designated bus parking spaces in auto lot. -Parking for 60 cars, 20 RVs. -Poor space utilization and circulation. -Gravel road and parking.	-Parking for four buses. -Improve parking circulation and increase parking capacity 10% through better definition of parking spaces and aisles -Dust palliatives for gravel road and parking area. -Add gate and turnaround at Resurrection River bridge.	-Parking for six buses. -Increase parking capacity by 50% (about 40 vehicles). -Pave road and parking area -Add gate and turnaround at Resurrection River bridge.
Walk-in Campground	-Nine campsites, nine parking spaces, two vault toilets.	-Add cooking shelter	-Add cooking shelter -Add three sites and increase parking by three spaces. -Add two new closed-system toilets (type of technology to be determined)
Toilets	-Five vault toilets.	-Add four closed-system toilets near bus dropoff (type of technology to be determined).	-Add six closed-system toilets (type of technology to be determined).
Utilities	-Hand-pumped wells.	-No utilities added.	-Consider solar or wind power sources.

TABLE 2. EXIT GLACIER ALTERNATIVES (CONTINUED)

Visitor Contact and Interpretation			
Contact Station	-Visitor contact station, approximately 300 sq ft	-Relocate or build new contact station closer to paved trail for higher visibility.	-Construct new rustic facility, approximately 1500 square feet
Outdoor Gathering	-None	-None	-Construct covered pavilion near visitor contact station.
Trails	-River trail overgrown. -Accessible trail to kiosk, trail to outwash plain. -Upper trail one-way. Lower loop trail. -Nature trail.	-Construct river trail from walk-in campground to visitor contact station. -Extend accessible trail to a new overlook. -Connect the upper trail to the lower loop trail. -Improve the nature trail. -Improve signage.	-Construct river trail from walk-in campground to visitor contact station. -Extend accessible trail to gravel outwash plain. -Connect the upper trail to the lower loop trail. -Improve the nature trail. -Improve signage. -Construct trail to Ouzel Falls.
Resource Protection/ Visitor Management	-Staff directs parking in lot. -Trail upgrades, trail closure, revegetation -Bear-proof garbage cans, posted warnings and safety measures, close trails when necessary.	-Limit visitor levels to the capacity of the parking lot. -Continue current resource management, plus implement trail protection plan. -Continue wildlife management practices, plus add centralized cooking and food storage boxes and maintain sight distances on trails.	-Elective seasonal shuttle system until the expanded parking capacity is reached. -Mandatory seasonal shuttle system during peak days and times (to be determined). -Continue current resource management, plus implement trail protection plan. -Continue wildlife management practices, plus add centralized cooking and food storage boxes and maintain sight distances on trails.
Support Services			-Construct small maintenance storage in contact station or toilet building.
Winter Use	-Recreational and commercial use; track setting; public use cabin.	-Recreational and commercial use; track setting; public use cabin.	-Recreational and commercial use; track setting; public use cabin.

AFFECTED ENVIRONMENT

REGIONAL CONTEXT

Kenai Fjords National Park is located on the 100-mile wide and 170-mile long Kenai Peninsula. The peninsula is bounded by Cook Inlet to the west and Prince William Sound to the east. The park lies along the southern coast of the peninsula, with the Resurrection River forming the park's northern boundary.

The Kenai Peninsula is a pristine and rugged area supporting many unaltered natural environments and ecosystems. The land mass as well as the waters surrounding the peninsula fall under a variety of jurisdictions. The Chugach National Forest, a 6,626,000-acre area in the northeastern portion of the Kenai Peninsula, contains extensive mountains, glaciers, fjords, and islands, and is heavily used for recreation. The Kenai lowlands and Kenai National Wildlife Refuge are located in the western portions of the Kenai Peninsula and offer sightings of moose and other wildlife, and a variety of other recreational opportunities. Off the coast of the park are the Pye and Chiswell island groups with great concentrations of marine mammals and seabirds. These and smaller islands within the fjords are part of the Alaska Maritime National Wildlife Refuge (Gulf of Alaska Unit). These are conservation system units established under the Alaska National Interest Lands Conservation Act of 1980. Several major parks and recreation areas have been established by the state of Alaska. These include Kachemak Bay State Park and Kachemak Bay State Wilderness Park, both located in the southwestern part of the peninsula; Captain Cook State Recreation Area, located on the upper Cook Inlet side of the peninsula; and Caines Head State Recreation Area, which lies approximately 6 miles south of the city of Seward, on Resurrection Bay. In addition, five park units located in Resurrection Bay are administered by Alaska State Marine Parks.

Other state, borough, and private lands are contained within the region. Extensive native village and regional corporation lands lie along the western side of the peninsula, and village corporation lands are also within the boundary of Kenai Fjords National Park.

The Kenai peninsula has relatively mild winters and cool summers. The park lies within a maritime zone, which is characterized by moderate temperatures and high precipitation. Spring is usually the driest time of the year; fall and early winter are the wettest times. Mean annual rainfall for the Seward area is approximately 63 inches. Snowfall is common at sea level from November through the end of April. Exit Glacier receives more snowfall than does Seward, and several feet of snow usually covers the ground at Exit Glacier during the winter months. Storms are most prevalent during the winter months, when waves to 30 feet have been reported.

SURROUNDING COMMUNITY

The city of Seward is situated on an alluvial fan at the head of Resurrection Bay and is surrounded by mountains, including the 3,022 foot Mount Marathon that forms Seward's western boundary. The city dates to 1902, when it was selected as the site for the southern terminus of the Alaska Central Railroad because of its deep, ice-free harbor. In this century it has been a busy seaport and center for miners, loggers, trappers, and fishermen. Seward was the original starting point for the Iditarod Trail, and a park in the south of Seward marks the location of the former trailhead. In 1964, the Good Friday earthquake and resulting tidal waves destroyed over 90% of the city's industries and businesses, and severely damaged many residential areas. Thereafter, Seward entered a period of decline. (The population did not return to pre-earthquake levels until the mid-1970s.) Today the city is experiencing economic growth from tourism, while maintaining a position of strength in its traditional industries, transportation and fishing.

SOCIOECONOMIC ENVIRONMENT

Tourism is an important component of the regional economy, with the prospect for continued growth in the foreseeable future. While the Kenai Fjords National Park is a major attraction for both Alaska residents and nonresident visitors, any improvements to Park Service facilities would be in response to increases in demand associated with general tourism growth in the region. The principal effect of NPS actions will be to reduce congestion at existing facilities rather than to stimulate tourism. For a more detailed discussion on the role of tourism in the Seward area, the reader is referred to Appendix B.

Population

In recent years the Kenai Peninsula borough population has grown substantially, from 40,802 in 1990 to 44,411 in 1993, an increase of 8.3%. The City of Seward grew at a modest 1.2% during the same period, increasing from 2,699 persons in 1990 to 2,732 persons in 1993. In 1990 the outlying area of Seward (including state of Alaska correction center inmates) had a population of 1,238 for a total area population of 3,937 persons. No corresponding figures for the outlying area are available for 1993.

Economy

The economy of the Kenai Peninsula is a relatively small but significant component of the economic base of Alaska. Employment in 1993 stood at 18,309 jobs, which is about 7% of the total Alaska employment base of 296,000 jobs. The Peninsula economy is principally based on resource extraction (oil and gas production and fishing), transportation, and tourism. The last of these, tourism, has experienced rapid growth in recent years. The Peninsula receives large numbers of resident (intrastate) and nonresident visitors. According to Alaska Economic Trends (February 1995), 29% of nonresident visitors to Alaska spent time on the Kenai Peninsula in 1993. Another study on Kenai Peninsula tourism pegged the 1990-91 total for resident visitors (mostly from Anchorage) at 180,000 persons. Continued rapid growth is expected in 1994 and beyond.

Seward's economy is diversified, with a traditional industrial base tied to the sea and fishing, as well as tourism, education, and state corrections. As the southern terminus of the Alaska Railroad (AKRR), Seward has long been a transportation center. The AKRR Ocean Terminal, Seward Coal Terminal, Alaska Marine Highway (ferry) dock, and Marine Industrial Center are important components of the transportation industry. Related supplies and services, including provisioning and ship maintenance, repair and fueling provide support to this industry. Fishing and fish processing and related supplies and services continue to be a substantial and growing part of Seward's economy. The Alaska Vocational Training Center offers a variety of training to approximately 250 students. It is the state's largest facility of this type. The University of Alaska Institute of Marine Science provides the latest in ocean research and homeports its oceanographic vessel at Seward. The State Corrections Center is a maximum security correctional facility with accommodations for 300 inmates. The Seward Sawmill is underutilized due to inadequate timber supply.

Since 1990 substantial gains in Seward employment have been made in two major industry sectors: in services and in fishing. The recent gains in service jobs have been tourist-related in many instances.

Tourism

Recent growth in tourism has developed from the many recreational opportunities in the area: sport fishing, recreational boating, tour-boat trips to the fjords, camping in and around Seward, hiking, sightseeing, and kayaking. Special events in Seward such as the annual Fourth of July Mount Marathon race and the silver salmon derby in August also draw many visitors to the community.

There has been extensive retail and service business development in Seward in response to increased tourism. Most of the development has taken place in or adjacent to the Small Boat Harbor. Some of the businesses provide services linked to park attractions, such as tour boat companies who carry visitors on sightseeing tours to the bays, fjords, and glaciers of Kenai Fjords National Park. Others provide general services including food and beverage, lodging, shopping, amusements, or specific recreation services not related to the park, e.g., charter fishing.

The city of Seward has supported development of tourism through a number of improvements. Boat launches have been established in the Small Boat Harbor and near the coal terminal. A boardwalk has been constructed along the water's edge at the harbor. The city has developed recreational vehicle (RV) parks and camping areas, a park, and a bicycle/pedestrian path along the waters edge from the vicinity of the Small Boat Harbor to the downtown area. The city has also supported the establishment of the new Alaska Sea Life Center, which is now under construction at a location on the western side of town.

The Kenai Fjords National Park is currently an important component of the tourism industry in the Seward area. Further discussion of the industry including information on park visitation is presented below.

The Visitor. The Alaska tourist industry serves both resident and non-resident visitors. Major recent growth in Alaska tourism has been in nonresident visitors coming for vacation/pleasure purposes. Over two-thirds of nonresident visitors arrive during the four peak summer months of June September. Many of these visitors travel to and from the Kenai Peninsula as part of several cruise ship tour packages. The tours include overland bus transportation of arriving (or departing) cruise ship passengers between Seward and Anchorage. The Alaska Railroad also provides passenger train service with special tour packages available between Anchorage and Seward.

Considerable visitation to the peninsula also occurs with Alaska residents seeing relatives and friends or enjoying fishing and other outdoor activities. Since the park is only 130 miles from Anchorage via the Seward Highway, it is easily accessible to many Alaskans. For residents of the Anchorage area, the Kenai Peninsula is an outdoor recreation "paradise" offering diverse recreational opportunities during weekends and short vacation stays.

Total visitors to Seward in 1993 were estimated at 316,849 persons of which 151,618 were residents of Alaska and 176,580 were nonresidents. Approximately 77% arrived by private auto or RV. Arriving cruise ship passengers were the next largest group at 17%. Arrivals by private air craft amounted to 2.8%. Alaska

Railroad (AKRR) passenger arrivals comprised 2.5% (AKRR carried 15,827, mostly round-trip, passengers). Finally, ferry arrivals amounted to 1.0% (Alaska Marine Highway carried 3,200 passengers).

The surge in cruise ship traffic may be the most significant factor emerging to change Seward's visitor market. In 1993 there were 61 port calls made by cruise ships at Seward, which was double the number for 1990 and a 50% increase above the previous year. This increased to 91 calls in 1994. According to Cruise Line Agency of Alaska, cruise ship bookings call for 120 arrivals in 1995, and the number of vessel calls could rise to 150 in 1996. The agency does not project port calls. Bookings for the coming year reflect commitments used in assigning berths for ships using port facilities in Seward and elsewhere. Presently, most cruise ship traffic is not oriented to visiting Seward. Most vessels turn around at Seward and their passengers disembark, are bused to Anchorage, and leave by air. Other passengers arrive by bus from Anchorage to begin their cruise from Seward. However, a small share of these passengers visit Seward during the stop-over. Cruise ship crew members also visit Seward for short periods. The attractions of the Alaska Sea Life Center and a larger park visitor center could result in more cruise vessels using Seward as a port-of-call rather than a port-of-termination for cruises in South Central Alaska. Longer stays for greater numbers of passengers would result in increased visitor spending, further stimulating economic activity in Seward. It is also likely that cruise ship passenger visits to the visitor center would increase substantially.

Visitation to Kenai Fjords National Park. The spectacular coastal areas of the park are accessible primarily from the water. Visitors are provided access from Seward to the bays, fjords, and glaciers in the park by local tour boats companies that operate from May through September. Sightseeing and air charters are also available from Seward. Some visitors travel to the coastal areas using private and charter vessels or by kayak. A few visitors hike to the interior areas of the park. Public use cabins are available in Aialik Bay and Nuka Bay.

Most visitors to Exit Glacier arrive by private vehicle. A local charter boat company offers a van trip to the area. Cruise ship passengers staying in port are bused to the glacier and to the visitor center by a local bus contractor.

Recreational visits to Kenai Fjords National Park have increased significantly since 1987, based on data obtained from NPS monthly use reports. Visitation at the visitor center in Seward grew from about 28,250 in 1987 to 53,250 in 1994, an increase of 88.4 %. Exit Glacier also experienced rapid growth in visitation during this period, with recorded visits more than doubling to the 1994 level of about 147,000 visitors. Average annual growth rates (compounded) between 1987 and 1994 were 9.5% for the visitor center and approximately 13.5% for Exit Glacier.

The NPS visitation data for the two major facilities provided the basis for conducting forecasts of annual, peak month, and peak day visitation in future years. Forecast visitation ranges indicating low-, moderate-, and high-growth scenarios were developed to estimate facility requirements over the period covered by this plan.

The visitation projections were based on past trends for both Alaska resident and nonresident visitors as well as the potential for increased cruise ship passenger arrivals (which is the basis for the high-growth scenario). The base-year, 1993, was the starting point for the projections. Visitation projections for both the visitor center and Exit Glacier were made for 1994, the first projection year, 1998, 2003, and 2008. (Actual 1994 visitation figures were collected and used to compare the results of the three projection scenarios for that year.)

For the low-growth scenario, the 1994 projections were based on a reduction of visitors to both facilities by 10% from the 1993 levels. Thereafter, growth in visitation was based on a 2% rate of increase for both resident and nonresident visitors. This implied that growth in park visitations would follow the trend for the Anchorage population and that nonresident visits would slow dramatically, compared to recent trends. For both the moderate- and high-growth scenarios, the 1994 projections were based on the annual average rate of growth in visits between 1987 and 1993 or 13.3%. The moderate-growth scenario was based on a 17% resident visitor share (from NPS survey data) and resident visitor growth of 2% per year for all years following 1994. The nonresident visitor share (83% of total visitors) was projected to grow between 1994 and 1998 at 5.5%, which was the average annual rate of growth for nonresident visitors to the state between 1985 and 1993, and after 1998 at 3.5%. The slowing of growth follows statistical regularity of many growth functions where the higher the point on the growth curve, the more the rate slows. The high-growth scenario was based on the same resident visitor growth trends as the moderate-growth scenario. For the nonresident component, which includes cruise ship passengers, the proportion of cruise ship passengers who visit Park Service facilities was presumed to grow from 10%, estimated for 1993, to 17.5% by 1998. This higher level of visitation or capture rate was based on a feasibility study for the Alaska Sea Life Center conducted by Fox Practical Marketing and Management in 1993. Following this study, cruise ship visitations were expected to grow at 4% per annum though the study horizon. Only one half of cruise ship passengers who visit National Park Service facilities were considered likely to visit Exit Glacier.

More detail on methods and results from projecting visitation is presented in Appendix B.

EXISTING LAND USES

SURROUNDING LAND USES IN SEWARD'S SMALL BOAT HARBOR

All of the visitor center sites considered are located near Seward's small boat harbor. This area is presently the hub of tourist and boating activity for the eastern Kenai Peninsula. Moorage in the harbor is in high demand for fishing and charter vessels as well as private recreational boats. Restaurants, boat tour operations, retail shopping, a boat launch, kayak rental, a hotel, parking, an open-air fish cleaning area, and nearby boat storage all support the marine-related resource and tourist activities. The harbormaster's office is located in the center of the area. Pedestrian areas along the shore, and restrooms constructed by the National Park Service provide additional amenities. Three main parking areas serve the small boat harbor, one at the north end, one in the midst of the facilities, and one across the street and southward from the NPS visitor center.

EXISTING VISITOR CENTER SITE AND FACILITIES

The Kenai Fjords visitor center and headquarters (on site 4) is located at the south end of the boat harbor, between Fourth Avenue and the water's edge. The harbormaster's office is immediately to the north and the boat launch is to the south. The building is adjacent to one of the two main gangplanks to the docks, and is connected to the rest of the area by the shoreline boardwalk. There is a small graveled plaza area with interpretive kiosks next to the public restrooms and shoreline boardwalk. At the front of the building is a generous deck, access ramp, and seven vehicle parking spaces. Between the visitor center and boat ramp is parking for four NPS vehicles; shuttle buses use the entry to this space for loading and dropping off passengers. Designed and built in 1986, the Cape Cod style building is attractive and of an appropriate character for the boat harbor.

The current 5,150 square foot headquarters facility offers information to travelers, a small exhibit and an Alaska Natural History Association sales area, a multipurpose auditorium to seat 30 people, and indoor restrooms. These visitor functions occupy an area of approximately 2,400 square feet. The remainder of the building is used for staff offices, a small library room, a conference and lunch room, storage, circulation, mechanical space, and a small staff restroom.

LAND USES AT OTHER POTENTIAL VISITOR CENTER SITES

Across Fourth Avenue from the visitor center is site 5. Part of this site is occupied by an A-frame building which currently houses a restaurant. The remainder of the site is used for boat storage or is vacant space. An access to the city parking area is provided along the western edge of the site; this runs parallel to Third Avenue (the Seward Highway). South Harbor Street is on the northern edge, and the city parking area is on the southern boundary of the site.

Site 3 is immediately south of the city parking area on Fourth Avenue. It is bordered by Van Buren Street to the south and Third Avenue to the west. It is divided by a stream draining a nearby freshwater lagoon. Tidally influenced, the stream supports anadromous fish, species that spend part of their lives in fresh water, and part of their lives in the sea. The site is currently gravel surfaced. It is occupied by a radio tower and espresso cart, and is used for RV camping in the summer. The radio tower is scheduled for removal in the near future.

Across Fourth Avenue from site 3 and immediately south of the Small Boat Harbor is a grouping of 2-1/2 story condominiums. Open, gravel surfaced areas between these buildings and the shore are used by campers and RVs in the summer months. Site 15 lies south of this condominium complex on the corner of Fourth Avenue and Ballaine Boulevard. The existing site is a gravel baseball diamond with a fence, backstop, and two small wooden dugouts. It is bordered by the stream outlet from the freshwater lagoon on the north, a drainage ditch on the south, and a tidal backwash area to the east. An asphalt bicycle path begins at Fourth Avenue and runs along the eastern and northern edges of the site. The path continues to the south end of town through a city owned waterfront park. Bordering the ballfield site are multifamily housing units across Fourth Avenue, and another ballfield and city park lands to the south.

LAND OWNERSHIP AND ACQUISITION FOR VISITOR CENTER SITES

The National Park Service owns the facility it currently occupies, and leases the land from the city of Seward. If either alternative B or C is implemented, in which the park visitor center would be located in this facility, the same arrangement would remain in effect.

Site 5 is currently in private ownership. If alternative B is implemented, the National Park Service would purchase the land and build its own administration facility.

Site 3 consists of six land parcels. Five of the parcels are in private ownership, and one is owned by the city of Seward. If alternative C is implemented, the National Park Service would purchase all of the parcels, and build its own administration facility primarily. If alternative D is implemented, the National Park Service and the Forest Service would jointly purchase the land and build an administration facility.

Site 15 is currently in city ownership. If alternative E is implemented, the National Park Service and the Forest Service would lease the site from the city. Both agencies would jointly own the new facility.

EXIT GLACIER LAND USES AND FACILITIES

Exit Glacier is the sole point of road access to the park. The park boundary lies approximately 8 road miles from the Seward Highway. Exit Glacier Road passes by residential and commercial land at the highway intersection, then traverses residential and borough properties before reaching Chugach National Forest. The gravel road continues through Forest Service land until it reaches the Resurrection River Bridge and the park boundary. The Federal Highway Administration has constructed a pull-out and scenic overlook to Exit Glacier on Forest Service land shortly before the bridge. A Forest Service parking area and trailhead for the Resurrection River Trail is adjacent to the bridge.

The new road currently under construction will bypass most of the private properties when complete. It will also rebuild the Box Canyon Bridge, which is currently substandard and an impediment to bus traffic. While there are no current plans for paving the road past the Forest Service boundary, it is possible that the road will be paved in the future. No utilities are provided or planned along the Exit Glacier Road.

The Exit Glacier parking area is 1.7 miles from the Resurrection River Bridge, accessed by the gravel park road.

The existing parking area has a capacity up to 60 automobiles, two buses, and 20 RVs. However, circulation is awkward, cars and RVs often do not park efficiently, and the designated bus parking space is often filled with private vehicles. The net result is a parking area that holds far less than its capacity. The gravel lots are divided with young cottonwood and alders and surrounded by tall trees, and are of a pleasing scale appropriate to a natural area. Because a trail along the side of the lots was never constructed as designed, pedestrians must walk through the vehicle area.

Adjacent to the parking and dropoff area are five vault toilets, the trailhead to the glacier, and a picnic area with a structure used primarily as a winter warming hut and equipment storage for visiting researchers. With two tables and low scrubby vegetation, the picnic area is poorly used and is reported to have high mosquito populations.

A bulletin board near the beginning of the asphalt trail orients visitors to the opportunities and regulations of the area. Most visitors were observed stopping here to seek information, but for only a short time; many small pieces of information are applied to the board, and it is difficult to take them all in.

A visitor contact station sits approximately 40 feet from the start of the asphalt trail, partially obscured from the trailhead by deciduous vegetation. This structure contains approximately 300 square feet which offers the visitor a staffed information counter, a few interpretive artifacts and displays, resource books to consult or to buy, and a comfortable seat near a wood-burning stove. A small back room contains a cot for medical emergencies and equipment storage. Picnic tables under the covered porch are used for interpretive talks, perusing the guest book, and picnicking on a warm day. Because the glacier is visible from the trailhead, visitors tend to head for the glacier first and stop at the contact station on the way back from their experience. Many visitors never stop, perhaps because it is partially concealed, and perhaps because it is identified as a “Ranger Station” rather than visitor information station.

The half-mile trail to the glacier is paved and accessible to a stone kiosk approximately 1,500 feet from the parking area. The kiosk contains graphic interpretive displays and offers a view to the glacier. Vegetation is beginning to obscure the view. Benches are placed along the pathway but are oriented parallel to the trail rather than toward the glacier, which is visible from most of the way. The trail continues with a gravel surface, crossing a tributary of Exit Creek on a bridge which requires stepping up. This gravel trail continues to the outwash plain, with several options and signage indicating “More Difficult Route” and “Easier Route”. A spur trail, the Upper Trail, leads further uphill to the side of glacier, and an unimproved path from this spur leads to a view of Ouzel Falls. This group of trails also leads to the Harding Icefield Trailhead. The Icefield Trail is a strenuous 3-mile hike that takes between several hours and a full day.

A nature trail with sequentially numbered interpretive signs begins at the kiosk. The 0.75-mile trail is routed along the edge of Exit Creek and terminates at the visitor contact station. The trail is currently not used by large numbers of visitors.

A walk-in tent camping area with nine spaces is located east of the visitor parking. Parking for nine vehicles, a hand-pumped well and two vault toilets are provided.

A ranger residence is nearby but separated from the main visitor area. This dwelling is occupied year-round. One public use cabin in this vicinity is rented out in the winter season and used as seasonal employee and volunteer housing in the summer. Another cabin is used for summer seasonal housing only. In addition, a camp area with food storage facilities provides a place for student volunteer workers during summer months. Two vault toilets located at a three-car staff parking area service the cabins and camp.

VISITOR USE AND EXPERIENCE

VISITOR CENTER

Most people using the park visitor center are combining this stop with recreational activity associated with the park fjords or Exit Glacier, the nearby national forest or state park lands, the city park camping grounds, or the boat harbor commercial district. In addition, many visitors are from cruise ships stopping in Seward as a port-of-call. People visit the center to find out about local tourism and recreational opportunities, learn about the park, or attend a special program.

The experience is affected by the numbers of people present in the small building. The relative crowding in the facility varies and is dependent upon the season and the presence or absence of cruise ships in port. Visitors arrive in surges from the cruise ships and also before and after charter boat trips to the fjords. The busiest times during the day are from 11 a.m. to noon, after the arrival of Alaska Railroad and cruise ship passengers, and between 5:00 and 6:00 p.m., when returning passengers from charter boats stop in the center. During inclement weather when boats cannot get to the fjords the visitor center can also become full. Approximately ten to fifteen days during June, July, and August visitors charter boats are not able to take passengers out due to inclement weather.

Presently the visitor experience in Seward is primarily one of obtaining information and purchasing natural history publications that are on display in the center. Park staff are generally available to answer questions and to sell the publications. Taxidermic displays of birds and mammals found in the park and some graphic panels constitute the interpretive exhibits; there is no room to expand exhibits further. Many visitors watch the audio-visual presentation or attend the daily naturalist lectures. The auditorium is in constant use, and on most summer afternoons demand for the naturalist lecture exceeds the 30 person capacity of the room. The auditorium lacks adequate ventilation and easily becomes overheated.

EXIT GLACIER

Exit Glacier is a destination that draws visitors from all over the world. The experience starts before the visitor arrives at the parking area. The access road follows the Resurrection River part of the way and is scenic in sections. The gravel road is often in rough condition. Immediately before the park entrance, a roadside interpretive overlook shows the visitor a spectacular view of the Exit Glacier ice mass outflowing the Harding Icefield, with the confluence of Exit Creek and the Resurrection River in the foreground. (The stopping area, however, currently lacks an interpretive panel in the provided mount). The bridge crossing signals the park entry, and a beaver lodge in the wetland next to the bridge is easily visible. The road passes through a series of forests that display the typical successional patterns that occur after a glacier recedes. Roadside numbers denote the year the glacier last covered that location, beginning with a date of 1780 at the bridge and wetland, and ending with 1940's at the entry to the parking lot. These signs are enigmatic at first; visitors may figure out what they mean only as they are leaving, and as such the signs are an engaging interpretive tool.

The parking lot has an informal feel, as the gravel lots are small, minimally delineated, and surrounded by vegetation. On crowded days, the lack of delineation and parking space might frustrate the visitor.

Visitors tend to fall into three user groups:

- those who take the Harding Icefield Trail and stay for all or the better part of the day;
- those who stay for approximately two hours, exploring the outwash plain, upper trail, and nature trail, as well as stopping at the visitor contact station;
- those who take the shortest route to the glacier and outwash plain, staying for less than an hour.

Most visitors fall into this last category, which includes all of those who are brought on the charter bus. Visitors from the charter buses as well as those in private vehicles tend to be over 50 years old. Many families and younger people use the area as well. Many of those staying at the campground hike the icefield trail.

Because the glacier is in view from the parking lot and main trail, most visitors head straight for it, stopping only briefly at the informational sign at the trailhead. The interpretive kiosk is well-used however, and provides a spectacular view as well as shelter while reading the interpretive panels. The benches along the paved trail are used especially by older and infirm visitors. The experience on the paved trail is much like that of a suburban park, with its wide gravel shoulders elevated above the surrounding grade, and frequent encounters with other visitors walking both directions. From most points along the main trail, visitors can see ahead to the enormous jagged planes of glacial ice they are approaching.

The trails from the kiosk to the outwash plain are more rugged and integrated with the surrounding grade and vegetation. The signed trail choices are not clear, though visitors have no difficulty finding their way to the outwash plain. Once there, they spread out in the broad expanse of gravel and along the wide toe of glacial ice. Because of the large space and the overwhelming scale of the glacier, the presence of other people does not diminish the individual's encounter with nature.

Most return via the same trail, though some take the signed interpretive nature trail. Some remain in the parking lot before or after their walk to eat near their vehicles; few use the picnic area.

SCENIC RESOURCES

SEWARD

Seward is located in a dramatically beautiful part of the world, with its landscape of mountains and water, bluish light and changing weather. At the current visitor center in the small boat harbor one has views to the boat harbor and bay, and to Mount Marathon and the glacier-capped mountains surrounding Resurrection Bay. The boat harbor area itself possesses a character that is expressive of a waterfront enclave: modest and small buildings, sloping roofs to shed the rain, clusters of masts in the harbor, concentrations of people moving by vehicle and by foot, and a distinctly marine and commercial tourist mix of uses. The visitor center contributes to this ambiance with the marine-related architectural building style and by the people and interests it attracts.

EXIT GLACIER

Exit Glacier is located at the head of a newly carved valley surrounded by pristine lands. To the north a massive mountain rises steeply, where mountain goats can sometimes be seen. To the south and east are broad river plains and a vista to Paradise Glacier in the distance. Exit Glacier looms above with enormous bluish-white ice formations extending to the sky. The scene is at once awesome and approachable.

The diverse successional plant communities and topographic pattern of glacial moraines provide diversity in foreground views. Older forests feature the black spires of spruce, juxtaposed against yellow deciduous species in the fall. Maturing cottonwood forests consist of crowds of regular straight trunks with a solid understory, while the poorer soils support open or scrubby growth, often thick with mosses, lichens, and wildflowers. Most of the vegetation in the affected area falls into these last two categories. Nearer the glacier, the foreground is open gravel and massive stone, often displaying the scraping marks gouged by the glacier, and shallow ponds and puddles filled with milky-white water.

ACCESS AND TRANSPORTATION

SEWARD

Seward Street System

Seward Highway (state highway 9) is the principal route in and out of Seward, providing access to Anchorage and other destinations on the Kenai Peninsula. Seward Highway is primarily a two-lane roadway with occasional turning lanes as it enters Seward. Travel lanes are approximately 12 feet wide with paved shoulders. The posted speed limit is 55 miles per hour outside of Seward and 35 miles per hour within Seward.

The street system in downtown Seward is laid out in a grid pattern. Generally, the east-west streets are stop controlled at their intersections with north-south streets, which have through priority. In the downtown area, Seward Highway becomes Third Avenue. Third Avenue eventually terminates at the south end of town where it meets Railway Avenue. Railway Avenue becomes Ballaine Boulevard which runs north-south along Resurrection Bay. Fourth Avenue parallels Third Avenue and provides access to the boat harbor in the vicinity of the existing park visitor center.

The terminus of Third Avenue is fronted by residential and commercial land uses and is close to the University of Alaska's Institute of Marine Science and the ferry dock. The Alaska Sea Life Center (under construction) is located at the south terminus of Third Avenue.

See maps on pages 27 and 29 showing the layout of Seward's street system.

Seward Parking

On-street parking is permitted on most streets in the downtown area. Private parking lots serve some businesses, but most rely on the on-street parking. Across Fourth Avenue from the boat harbor, the city manages several parking lots which accommodate approximately 750 vehicles. However, since people using the boat launch park in the public lots, some vehicle space is taken up by trailers, reducing the parking capacity. Both long and short term parking is available.

The public parking in the Boat Harbor area has been heavily utilized during the summer months when boat tours and fishing charters are popular. After the 1993 season, which experienced extremely heavy use, the city instituted time limits on some of the parking. On-street parking currently is limited to two hours. The city lots in the harbor area have various time limitations ranging from four to 72 hours. The city reports that there were fewer complaints about parking availability in the harbor area after these time limitations were instituted. Another measure that may have contributed to reduced complaints regarding parking availability is the new public boat ramp that was opened in 1994 on the east side of the boat harbor. Since the 1994 season, public restrooms, paving, and a retail establishment have been added near the new boat launch. Highway signs directing traffic to the new boat launch area have also been added. These improvements plus the proposed relocation of the fuel dock to the east side of the boat harbor (anticipated in 1996), may further reduce the demand for parking in the vicinity of the visitor center.

Transportation Services

Public transportation within Seward consists of a bus service connecting the small boat harbor area with the retail businesses and ferry dock in the south area of town. There is a public bus stop on Fourth Avenue in the vicinity of the visitor center. Several tour companies bring groups through Seward on private buses. The cruise ships in port also contract with tour operators to provide bus service from the docking space to the small boat harbor and the south end of town. During the summer there is also scheduled daily bus service between Seward and Anchorage.

The Alaska Marine Highway ferry uses the municipal dock located at the end of Fourth Avenue. Service is provided between Seward, Cordova, Valdez, Kodiak, and Homer. During the summer, weekly service is also provided to the Aleutian Islands.

Daily rail service between Seward and Anchorage is provided by the Alaska Railroad from May to September. The railroad depot is located at Fourth Avenue and Port Avenue, north of the boat harbor.

EXIT GLACIER

Exit Glacier Road

Exit Glacier Road, sometimes referred to as Resurrection River Road, starts north of the city of Seward at an intersection with the Seward Highway. The distance to Exit Glacier Road from the existing park visitor center in Seward is approximately 5 miles. The first 3.75 miles of Exit Glacier Road are maintained by the Kenai Peninsula Borough. The next 3.5 mile portion is maintained by the Forest Service. The road is also known as Alaska Forest Highway Route 46. Access to Chugach National Forest is provided on this road. At approximately mile 7.3, at the Resurrection River Bridge, the road enters Kenai Fjords National Park. The road continues for another 1.8 miles where it ends at the Exit Glacier parking area. Here the road is configured as a one-way loop with parking spaces located in three separate areas in the center of the loop.

The surface of Exit Glacier Road is hard packed gravel. Because of severe weather conditions and heavy vehicle loads, the road surface, though frequently re-graveled, can be difficult to maneuver. At speeds much over 40 mph or under 20 mph, the surface offers a “washboard” effect. Areas frequently damaged by floods are especially rough and difficult to maintain. The rough road surface tends to discourage visitation, particularly by visitors in RVs.

In 1990 an environmental assessment for improving Exit Glacier Road from the Seward Highway to the Resurrection River Bridge was conducted. Improvements made in 1995 included straightening curves, widening the road to a uniform two-lane standard and protecting against flooding and bridge replacement. The surface is paved for the first 3.75 miles and graveled for the balance of the improvement.

Exit Glacier Parking

The current parking configuration at Exit Glacier accommodates approximately 60 standard vehicles, and 20 recreational vehicles (RVs). There are some difficulties with traffic circulation, and existing signage is confusing. There is no bus dropoff area.

Exit Glacier Transportation

The Exit Glacier area is the destination for several tour services. These tours are typically served by full-size (43 passenger) buses. The tours originate in Anchorage, Seward and other Alaskan towns. In Seward, several of the bus tours serve passengers in port from cruise ships.

NATURAL RESOURCES

VISITOR CENTER

Floodplains

NPS Floodplain Management Guidelines define the 100-year floodplain using the National Flood Insurance Program designations to indicate the minimum level of flooding to be used by a community in its floodplain management regulations. None of the proposed project sites is located within the 100-year floodplain as mapped by the Federal Emergency Management Agency (FEMA 1981). All of the sites, however, are located in an area that flooded in October 1986 during an intense three-day storm.

Because of the known flooded conditions resulting from this storm, the NPS Water Resources Division has determined that the sites are located within a floodplain. Based on existing elevations at the proposed project sites and a map delineating the extent of the 1986 flood (Jones and Zenone 1988), flooding depths ranged from 1 foot at site 3 to 4 feet at site 15. The visitor center (site 4) is located within the flood zone from this storm. Although the surface of the floodwater was below the level of the front deck at the visitor center, flood flow did wash away 3 to 4 feet of gravel below the deck (Stevens pers. comm.).

The NPS guidelines state that if there is no practical alternative to locating park facilities in a floodplain, a Statement of Findings (SOF) must be prepared justifying the use of the floodplain. The SOF is separate from the environmental assessment. The SOF will clearly describe all alternative locations considered and provide precise reasoning as to why the proposed site was selected and why alternative sites were rejected. The SOF will include a thorough description of mitigation measures selected to achieve compliance with Executive Order 11988 (Floodplain Management) and the NPS Floodplain Management Guidelines, and it will provide sufficient information to evaluate the effectiveness of the proposed mitigation in managing identified flood hazards.

Building within floodplains is also regulated by the Kenai Peninsula Planning Borough. The borough requires floodplain permits only for those projects proposed within the 100-year floodplain as mapped by FEMA (Gabler pers. comm.). If the proposed action does not occur in the FEMA 100-year floodplain, a floodplain permit from the borough would not be required.

Floodplains are shown on the Seward Environmental Constraints maps on pages 69 and 71.

Tsunamis

The Alaska Department of Emergency Services and the Pacific Rim Warning Center do not delineate a specific coastal high hazard area for Seward. Both of these agencies reference the 50-foot and 100-foot contour lines as marking the upper limit of potential coastal high hazard areas subject to tsunamis (Sokolowski pers. comm.). This is based on many southcentral Alaska communities that experienced wave "run-up" between the 50-foot and 100-foot elevations after the 1964 earthquake (that is, waves reached the 50-foot and 100-foot elevations on land). The epicenter of this earthquake was approximately 85 miles northeast of Seward.

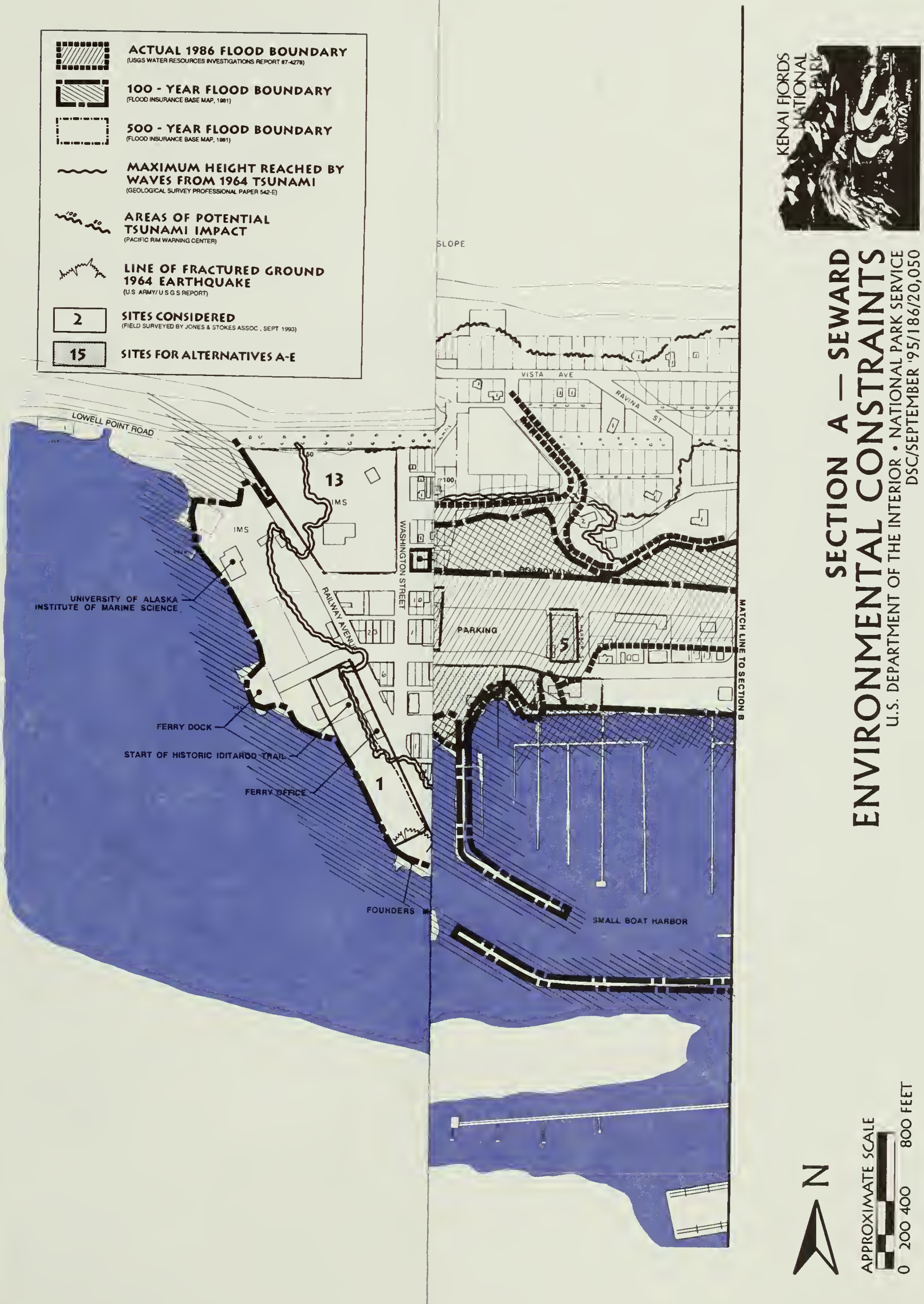
The maximum tsunami "run-up" in Seward after the 1964 earthquake was approximately at the 50-foot elevation (Sokolowski pers. comm.). All of the proposed project sites and a large portion of Seward, including the entire waterfront, are within the area of wave "run-up" from the 1964 earthquake. See Seward Environmental Constraints maps on pages 69 and 71.

NPS Floodplain Management Guidelines define coastal high hazard areas as those areas subject to tsunamis. Because the alternative sites are located in a tsunami area, the SOF prepared for floodplain issues must also include an analysis of siting the alternatives in a tsunami area, identify mitigation to achieve compliance with the guidelines, and describe the effectiveness of mitigation identified to manage tsunami hazards.

Seismic Activity

As previously discussed in the "Purpose and Need" chapter, Seward is located in a zone of highest seismic risk because of the frequency of recorded earthquakes and their magnitude. Site 15 is located within the area of high seismic risk identified in the City of Seward's Comprehensive Plan (Seward Planning and Zoning Commission 1990). The area of high seismic risk corresponds to the area of fractured ground damaged by the 1964 earthquake (U.S. Geological Survey n.d.).

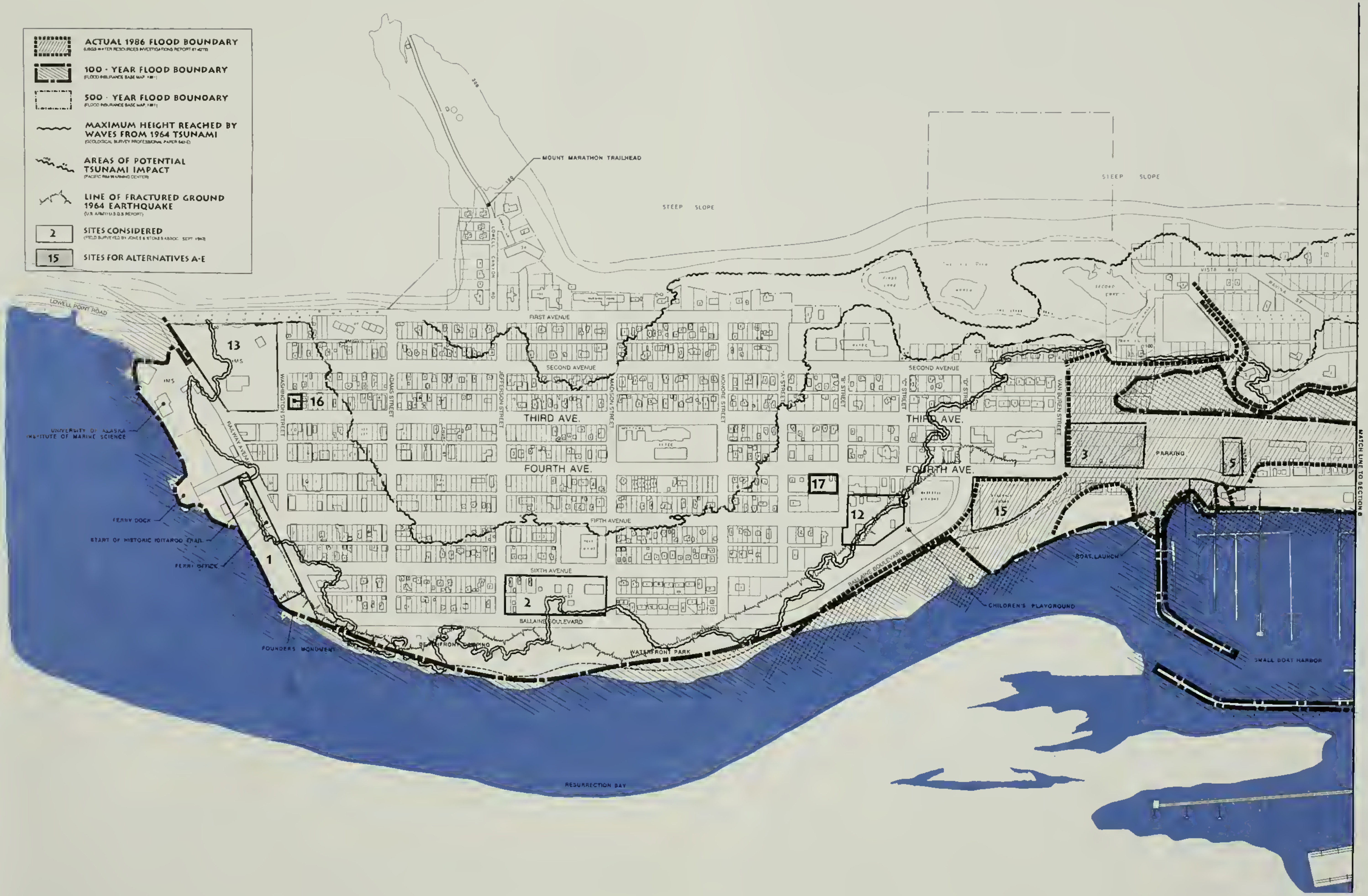
Geologic maps show that the proposed sites are located on alluvial-fan and fan-delta deposits consisting of gravels, sands, and silts. The exact properties of these deposits are unknown. Liquefaction may be possible in this type of material. Liquefaction occurs when soils lose their rigidity and liquefy when subject to repeated seismic shocks. The degree to which the soils at the proposed project sites could liquefy is unknown.


ACTUAL 1986 FLOOD BOUNDARY
(USGS WATER RESOURCES INVESTIGATIONS REPORT 87-4278)
100 - YEAR FLOOD BOUNDARY
(FLOOD INSURANCE BASE MAP, 1981)
500 - YEAR FLOOD BOUNDARY
(FLOOD INSURANCE BASE MAP, 1981)
MAXIMUM HEIGHT REACHED BY WAVES FROM 1964 TSUNAMI
(GEOLOGICAL SURVEY PROFESSIONAL PAPER 542-E)
AREAS OF POTENTIAL TSUNAMI IMPACT
(PACIFIC RIM WARNING CENTER)
LINE OF FRACTURED GROUND 1964 EARTHQUAKE
(U.S. ARMY/U.S.G.S REPORT)
2
SITES CONSIDERED
(FIELD SURVEYED BY JONES & STOKES ASSOC., SEPT 1993)
15
SITES FOR ALTERNATIVES A-E
SLOPE
VISTA AVE
RAVINA ST
LOWELL POINT ROAD
13
IMS
IMS
WASHINGTON STREET
RAILWAY AVENUE
BOARDWALK
PARKING
5
UNIVERSITY OF ALASKA INSTITUTE OF MARINE SCIENCE
FERRY DOCK
START OF HISTORIC IDITAROD TRAIL
FERRY OFFICE
1
FOUNDERS M
SMALL BOAT HARBOR
MATCH LINE TO SECTION B
N
APPROXIMATE SCALE
0 200 400 800 FEET

KENAI FJORDS NATIONAL PARK

SECTION A — SEWARD
ENVIRONMENTAL CONSTRAINTS

U.S. DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE
DSC/SEPTEMBER '95/186/20,050



KENAI FJORDS NATIONAL

SECTION A — SEWARD
ENVIRONMENTAL CONSTRAINTS

U.S. DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE
DSC/SEPTEMBER '95/186/20,050

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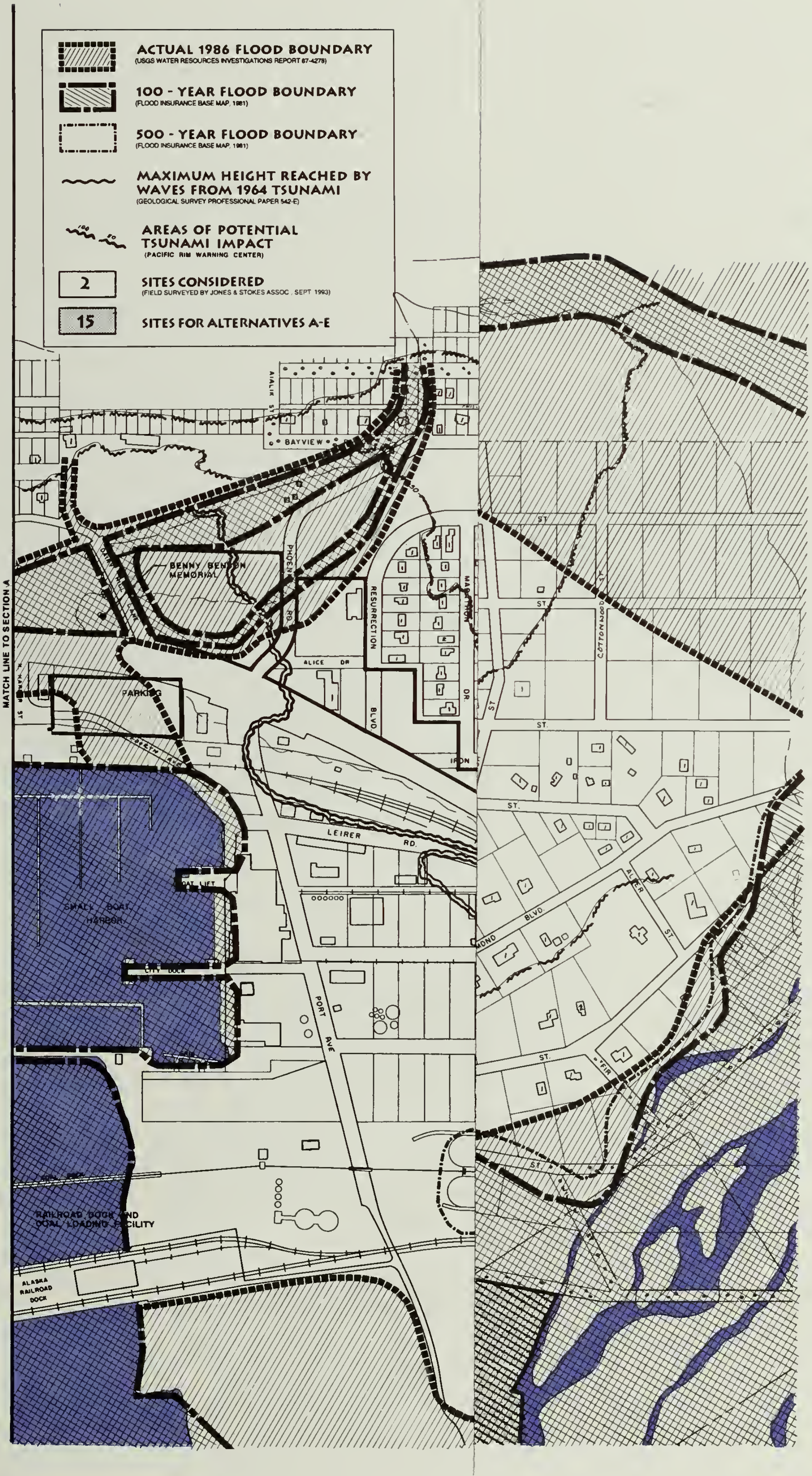
APPROXIMATE SCALE
0 200 400 800 FEET


ACTUAL 1986 FLOOD BOUNDARY
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AREAS OF POTENTIAL TSUNAMI IMPACT
(PACIFIC RIM WARNING CENTER)
2
SITES CONSIDERED
(FIELD SURVEYED BY JONES & STOKES ASSOC., SEPT 1993)
15
SITES FOR ALTERNATIVES A-E
MATCH LINE TO SECTION A
AIALIK ST
BAYVIEW
BENNY BENSON MEMORIAL
PHOENIX RD
RESURRECTION BLVD
MARATHON DR
ALICE DR
PARKING
IRON
LEIRER RD.
BOAT LIFT
SMALL BOAT HARBOR
CITY DOCK
PORT AVE
RAILROAD DOCK AND COAL LOADING FACILITY
ALASKA RAILROAD DOCK
COTTONWOOD
ST.
ALDER ST.
DIAMOND BLVD.
FIR

KENAI FJORDS NATIONAL PARK

SECTION B — SEWARD
ENVIRONMENTAL CONSTRAINTS

U.S. DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE
DSC/SEPTEMBER '95/186/20,051

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APPROXIMATE SCALE
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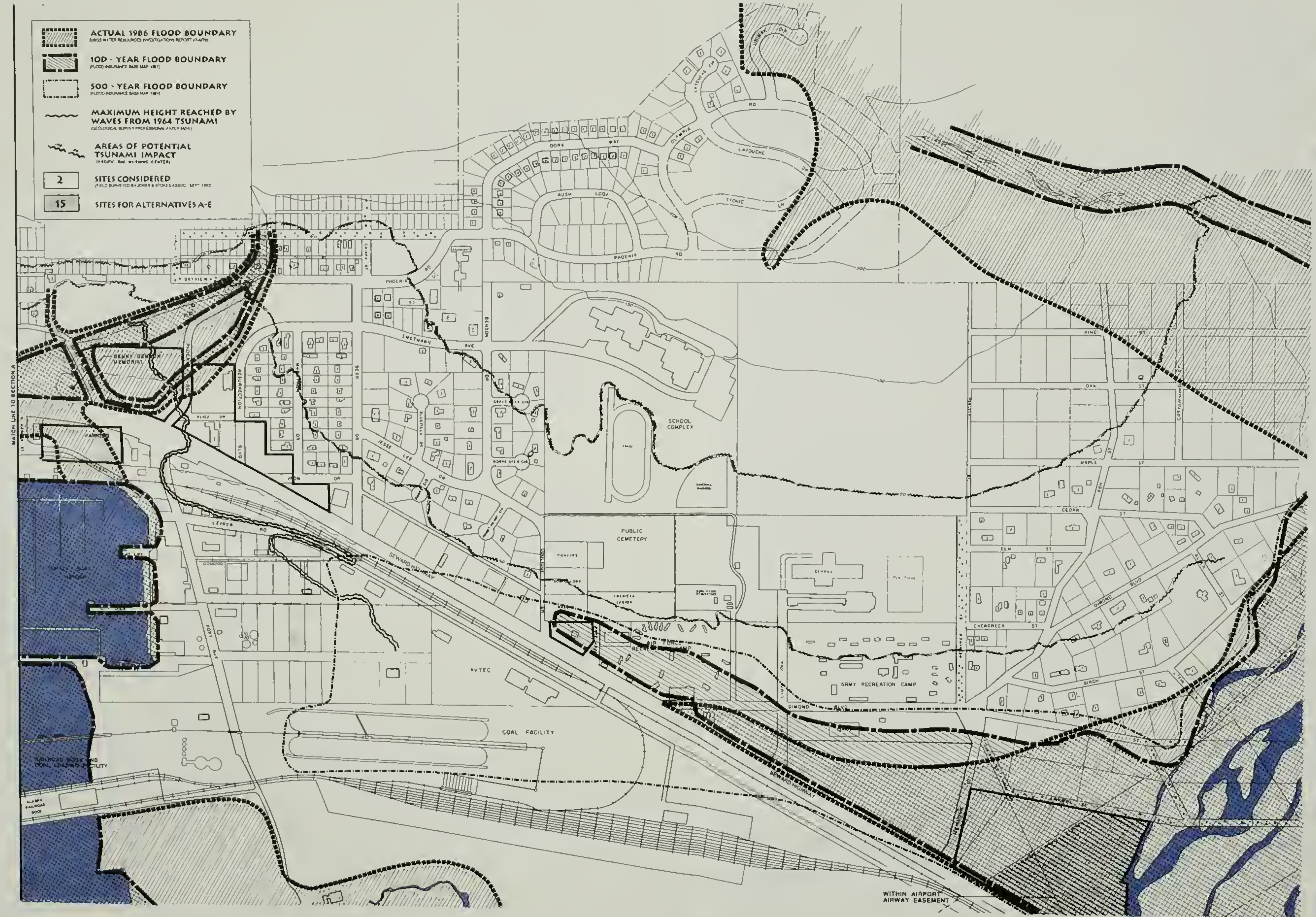

SECTION B — SEWARD
ENVIRONMENTAL CONSTRAINTS

U.S. DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE
DSC/SEPTEMBER '95/186/20,051

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APPROXIMATE SCALE
0 200 400 800 FEET

EXIT GLACIER

Vegetation

Jones & Stokes Associates identified vegetation communities for the Exit Glacier area during site visits in September 1993 and October 1994. Communities between Exit Creek and the park entrance road and asphalt hiking trail were the primary study sites.

Vegetation communities were classified based on (1) the structure of the vegetation (height and relative percentage of cover of the trees, shrubs, and herbaceous vegetation), and (2) the dominant species present. The classification system was adapted from the Forest Service's Alaska vegetation classification (Viereck et al. 1992).

The vegetation communities described in the following sections have become established as Exit Glacier has retreated over the last 200 years (Helm 1992). Downstream of the present location of the glacier, vegetation is typical of successional stages found on moraine deposits in this area (Ahlstrand n.d.). The term "successional stages" refers to the types of vegetation that grow in an area over time, from early plants that colonize an area that has been disturbed, to plants that are part of a mature vegetation community that becomes established in a later successional stage.

Vegetation communities at Exit Glacier are shown in the Exit Glacier Environmental Constraints and Natural Resources map on page 75.

Closed Mixed Forest. This community, located near the confluence of Exit Glacier Creek and Resurrection River, is dominated by both Sitka spruce and black cottonwood. This community represents the oldest successional stage in the project area, with some cottonwood trees estimated to be approximately 200 years old (Helm 1992, Ahlstrand n.d.). Understory vegetation consists of shrub species such as gooseberry, elderberry, and devil's club. Herbaceous species such as oak fern, deer fern, wintergreen, and blue-joint reedgrass are also present.

Closed Deciduous Forest. This community is dominated by black cottonwood and is found on upland terraces and moraine deposits along Exit Creek. It is more extensive than the closed mixed forest and represents a younger successional stage than the closed mixed forest. The young Sitka spruce seedlings scattered in this area indicate that, in time, this community will likely be dominated by Sitka spruce and black cottonwood. Understory species include Sitka alder, Sitka willow, gooseberry, elderberry, devil's club, goats beard, oak fern, deer fern, wintergreen, and blue-joint reedgrass.

Closed Tall Shrub (Alder). A closed tall shrub community dominated by Sitka alder occupies a small area (less than 1 acre) on low floodplain terraces near the confluence of Exit Creek and Resurrection River. This is a relatively young plant community, but the age and potential development of this community are controlled more by the dynamics of Exit Creek than by the glacier's retreat.

This is considered a closed tall shrub community because the Sitka alder shrub is over 10 feet tall and the shrub canopy exceeds 75% cover.

Open Tall Shrub (Alder, Cottonwood, or Willow). Open tall shrub communities are found on terraces adjacent to Exit Creek. These communities are dominated by either Sitka alder, black cottonwood, or Sitka willow. All of these shrub species are present in this community, but one species (either alder, cottonwood, or willow) dominates the shrub cover in different areas. The understory cover is patchy and includes yellow mountain-avens, wintergreen, tall fireweed, dwarf fireweed, and a variety of mosses and lichens.

The open tall shrub communities represent an earlier successional stage than the closed forest types. The open tall shrub communities are located on terraces adjacent to Exit Creek and between slightly higher terminal moraine deposits, where conditions for plant establishment and growth are harsher than on the moraines. The terrace soils are generally sandier and poorer in nutrients than soils in the forested communities (Helm 1992). Additionally, the open tall shrub dominated by willow near the confluence of Exit Creek and Resurrection River is subject to high groundwater and occasional flooding.

Seral Scrub. Seral scrub is an open, cobbly, sparsely vegetated community. This is an early successional community, with Sitka alder, dwarf and tall fireweed, yellow mountain-avens, wintergreen, and a variety of mosses and lichens beginning to occupy the bare ground.

Mesic Wet Meadow. A small, emergent wetland area located at the confluence of Exit Creek and Resurrection River is a mesic wet meadow community. This herbaceous community is dominated by horsetail, sedges, and blue-joint reedgrass.

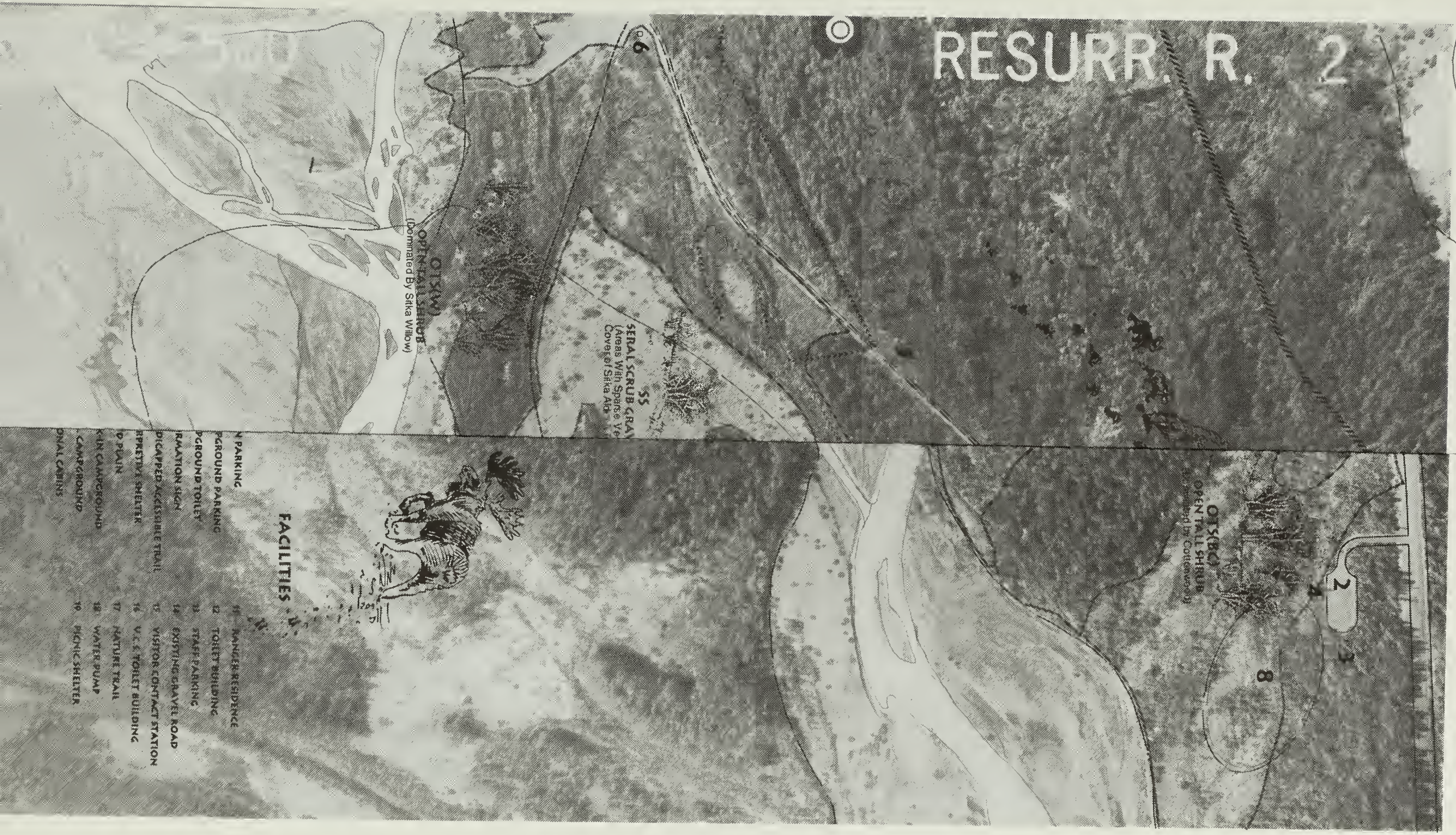
WILDLIFE

Information on the existing wildlife use of the Exit Glacier area was obtained through site observations, and through contacts with personnel from the Alaska Department of Fish and Game and Kenai Fjords National Park.

Mountain Goats

Mountain goats occupy nearly all of the high country (above 1,000 feet elevation) around Exit Glacier. Typically they stay above the cliffs that define the glacial trim line along the valley walls. Goats can be seen throughout the year from the Exit Glacier trails and parking lot, and goats are frequently encountered at very close range along the Harding Icefield trail.

During the summer, the goats spend most of their time along the ridge tops above tree line in alpine habitats. As the snow line drops in the fall, the goats move to lower elevations and will often winter near the treeline in subalpine and spruce forest habitats. In the spring, goats are regularly seen on the lower cliffs that form the north wall of Exit Glacier valley. By late May, the goats often move to the higher mountain peaks to give birth. The goats then follow the snow line up the ridges and once again summer on the alpine slopes. Goats do occasionally cross the glacier and valley floor.



EXIT GLACIER
ENVIRONMENTAL CONSTRAINTS AND NATURAL RESOURCES

U.S. DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE
DSC/SEPTEMBER '95/186/20,052

KENAI FJORDS NATIONAL PARK

EXIT GLACIER
ENVIRONMENTAL CONSTRAINTS AND NATURAL RESOURCES

U.S. DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE
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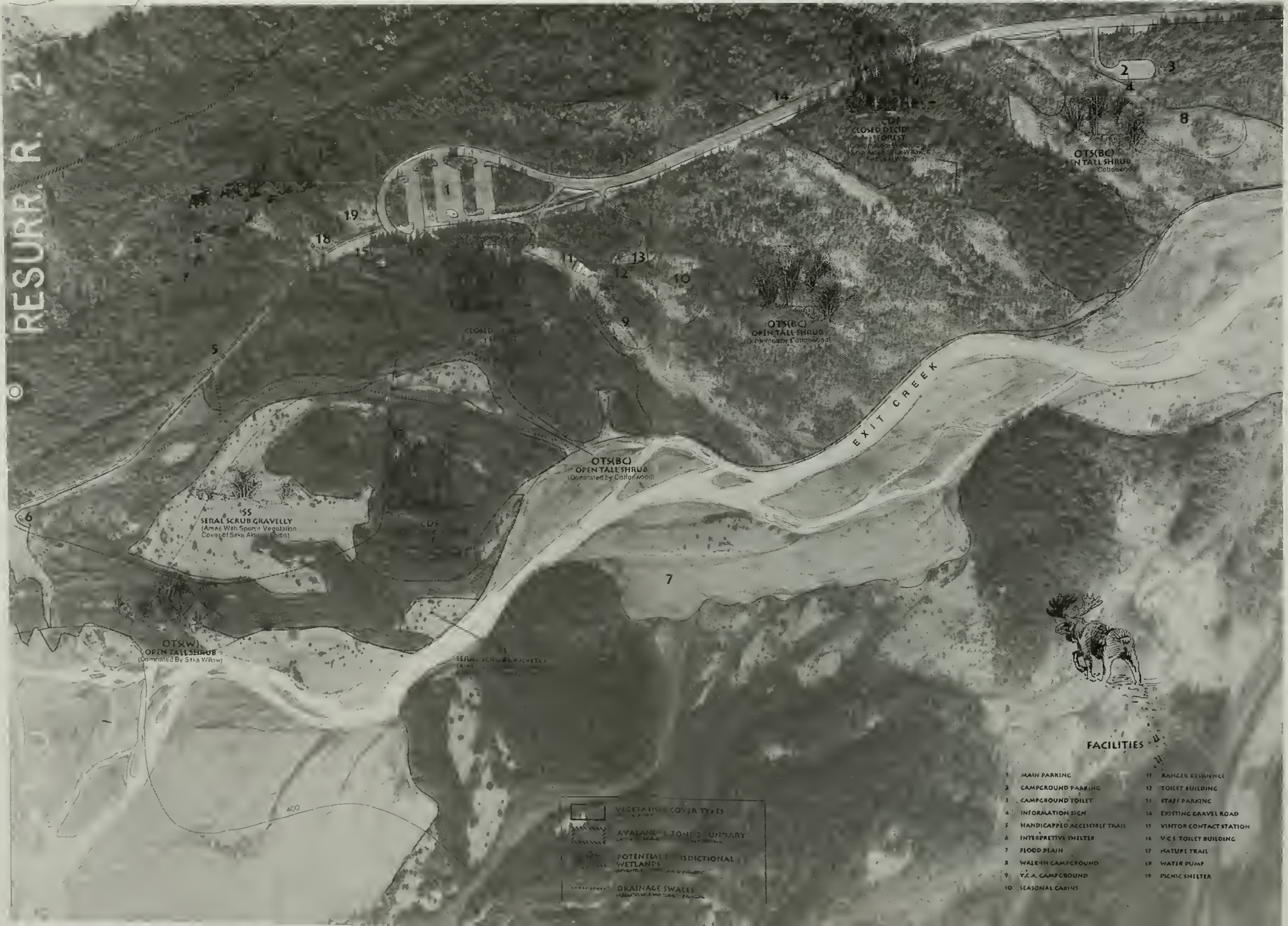

FACILITIES

1	MAIN PARKING	11	RANGER RESIDENCE
2	CAMPGROUND PARKING	12	TOILET BUILDING
3	CAMPGROUND TOILET	13	STAFF PARKING
4	INFORMATION SIGN	14	EXISTING GRAVEL ROAD
5	HANDICAPPED ACCESSIBLE TRAIL	15	VISITOR CONTACT STATION
6	INTERPRETIVE SHELTER	16	V.C.S. TOILET BUILDING
7	FLOOD PLAIN	17	NATURE TRAIL
8	WALK-IN CAMPGROUND	18	WATER PUMP
9	Y.C.A. CAMPGROUND	19	PICNIC SHELTER
10	SEASONAL CABINS		

Black Bears

Black bears are common in the Exit Glacier area. In early May, they appear on the slopes of the "goat ridge" on the north side of Exit Glacier valley above treeline, in the moist subalpine habitat where forage is plentiful. This area is critical spring habitat for the bears. During the spring, the bears are often seen in close proximity to the goats and will occasionally attempt to catch one. As summer approaches, the bears either follow the snow line up the slopes to the upper subalpine areas or roam the valley floors where they are occasionally seen on the Exit Glacier trails. Black bears are regularly seen all along the Harding Icefield trail from the trailhead to the high alpine areas. The bears feed throughout the summer on the numerous berry patches and other succulent vegetation along the trail corridor.

There is potential for bear-human conflicts at the Exit Glacier campground and residences. Several incidents have been documented. The interpretive nature trail and the paved trail have occasionally been temporarily closed during the summer when mother bears and their cubs have wandered through this area.

Brown Bears

Brown bears are infrequent visitors to the Exit Glacier area, typically passing through the valley in the spring on an annual migration between the upper Resurrection River valley and the Seward area. Brown bears are rarely seen around Exit Glacier after the spring snow is gone.

Moose

Although infrequently seen during the summer, moose are the most visible winter inhabitants of the Exit Glacier valley. In the fall, the moose congregate on the south side of Exit Creek between Exit Creek and Paradise Creek. This cottonwood and willow forest provides good forage while isolating the moose from visitors at Exit Glacier. As visitation declines in October, the moose move into the valley; on any given day, several moose are seen, sometimes right outside the residences. Several winter rangers and volunteers have been chased and harassed by moose. Both bulls and cows with calves occupy the area, and the bulls often partake in post-rut jousting throughout October, November, and early December.

As the snow melts in the spring, the moose seem to disappear from the valley once again, either hiding or migrating to other areas. Although it is not known for sure, the moose may spend a great deal of time during the summer in Paradise Creek valley to the south, where few visitors venture during the summer. In addition, moose typically prefer willow browse over alder or cottonwood, and willow is more common on the south side of Exit Creek.

Additional Wildlife

Additional wildlife species that are likely to occur in the Exit Glacier area are listed below. This list is based on habitat maps in Alaska's Wildlife and Habitat, Volume II (Alaska Department of Fish and Game 1978) and discussions with the Alaska Department of Fish and Game (Spraker pers. comm.).

Lynx
Mink
Coyote
Spruce grouse
Willow ptarmigan
Short-tailed weasel
River otter
Marmot
Gray wolf
Marten
Porcupine
Snowshoe hare
Rock ptarmigan
Beaver
Long-tailed weasel
Muskrat
Red squirrel
Vole

An active beaver pond is located in the wetland area near the confluence of Resurrection River and Exit Creek.

INFRASTRUCTURE

SEWARD

All existing utilities should be field-verified prior to design.

Site 3

The site is divided by a salmon-bearing stream that apparently top its banks during high water conditions. Water and sewer are available along Van Buren Street adjacent to the site. The site is a gravel lot and appears to drain to the salmon-bearing stream. Power service is overhead off of Van Buren Street. Telephone service may also be accessed overhead from Van Buren Street or from the underground main in Fourth Avenue.

Site 4

The city water main is located east of the existing visitor center approximately 5 feet from the building. The city sanitary sewer force main is approximately 10 feet west of the building. Underground power and telephone are also located north, east and south of the building, running east and south of the adjacent restroom building. The sanitary sewer for the restrooms gravity flows into a pump station located inside the visitor center building and is pumped from there to the city force main along Fourth Avenue. Storm drainage from the building spills directly onto the ground.

Site 5

Water and sanitary sewer utility services are currently provided for an existing restaurant building from Fourth Avenue. The telephone main line for this area is underground and runs approximately north-south down the middle of the site. There is an existing parking area west of the restaurant that is partially paved and partially gravel surfaced. Storm drainage from the site apparently drain into the street and to a ditch west of the site. The power main is underground on the east side of Fourth Avenue with an existing underground service feeding the building.

Site 15

The existing site is a gravel baseball field with a fence, backstop and two small wooden dugouts. Water, power and telephone are available on Fourth Avenue in front of the site or along the south side of the lot. The sanitary sewer force main crosses the site diagonally about 120 feet east of the edge of Fourth Avenue on the north end of the site and 200 feet east of Fourth Avenue on the south end of the site. Storm drainage from this site is poor as the ground level is below the elevation of most of the surrounding terrain. The storm drainage appears to drain through a ditch south and east of the site, and into the ground through infiltration.

EXIT GLACIER

Public sanitary facilities are comprised of five public vault toilets located near the parking and main trail to the glacier. The toilet facilities are currently pumped out five times per year. Other facilities include two vault toilet faciiities for the rangers. One hand-pumped well is located near the trail head and another is located near the ranger residence. Both of these pump at a rate of 40 gallons per minute. Storm drainage from the parking lots appears to be by infiltration.

The campground area has two vault-type toilets and a hand-pumped well for the nine campsites. The well pumps at a rate of 40 gallons per minute. There is no evidence of controlled drainage at the campsite area. Drainage appears to be through infiltration.

PARK MANAGEMENT AND OPERATIONS

At present, the park employs 17 permanent and term-appointed staff as well as up to 23 non-base-funded seasonal and volunteer staff. Most of the staff are located in the visitor center/headquarters building. Some staff offices are in the Landing Building located in the small boat harbor. Those working at Exit Glacier and in the park fjords check in regularly at the visitor center/headquarters building.

Permanent and term-appointed staff include the superintendent, facility manager, chief ranger, chief of interpretation, chief of resource management, resource management specialist, administrative officer, administrative technician, two administrative assistants (split position), boat operator, park ranger (protection), maintenance mechanic, two park rangers (interpretation), environmental education specialist, and a coastal ecologist. There is also an Alaska Natural History Association (ANHA) branch manager in charge of publications sales, which raise money for park programs.

Four seasonal maintenance staff are hired to do custodial work, construction, trail maintenance, vehicle care, painting and other maintenance tasks. They are employed during the summer season, from mid-May to mid-September.

Ten seasonal and volunteers-in-parks (VIP) staff supplement the permanent staff at the visitor center and Exit Glacier during the summer season. They conduct tours, lead hikes, present evening programs, and perform other interpretive duties from mid-May to mid-September. Two of the seasonal employees are ANHA sales clerks.

There are also six resource management summer staff, which includes four coastal rangers, a logistics coordinator and a biotechnician (this is a summer employment position for a university student). There are three protection/operations seasonals including the deckhand on the park boat, park ranger (protection) and winter Exit Glacier park ranger (protection). These summer seasonals generally work from approximately May 1 to mid-September.

The visitor center is open daily from 8:00 am to 7:00 pm from Memorial Day to Labor Day, and from 8:00 am to 5:00 pm the remainder of the year. It is closed on weekends from approximately November 1 to March 15.

The Exit Glacier area is open 24 hours a day all year. However, in winter, the road is not plowed beyond the Box Canyon Creek Bridge. Winter access to Exit Glacier is possible by snowmobile, snowshoe or cross-country skis.

Through the Student Conservation Association (SCA), trail crews consisting of high school students are provided. Usually there are two crews per summer, each of which works at Exit Glacier for five weeks. There are also several other volunteers.

Cooperative interpretive programs with Alaska Sea Life Center are anticipated in the future.

Once a year, the park provides interpretive training to boat tour operators, shuttle bus operators, and their staffs. The program serves approximately one hundred participants.

ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

INTRODUCTION

The following section evaluates the impacts and feasibility of the alternatives for the visitor center and for Exit Glacier. Each alternative is evaluated by topic; only those topics that would be affected by the alternatives are included in this section. Topics that would not be impacted by the proposed actions have been outlined in the Purpose and Need section of this document, with rationale for dismissing the topic from further analysis. (See Impact Topics Eliminated from Further Consideration).

Visitor center alternatives are evaluated first, followed by Exit Glacier alternatives. Because cumulative impacts for the proposed actions are similar, they are evaluated for all visitor center alternatives, and for all Exit Glacier alternatives, at the end of each corresponding section.

Because the alternatives represent conceptual planning only, this document is not intended to evaluate site specific compliance. Design level compliance will be completed in the design phase, prior to construction.

ENVIRONMENTAL CONSEQUENCES OF THE VISITOR CENTER ALTERNATIVES

ALTERNATIVE A: NO ACTION

Impacts on Visitor Experience and Scenic Resources

Analysis. If visitation increases as projected, in this alternative the facility would experience greater and more frequent seasonal crowding in the next decade. Visitors could find it difficult to obtain the information they are seeking, and many would not be able to attend special programs or view an audio-visual presentation in the visitor center. In-depth interpretive information on the park's resources would be limited, as provision of interpretive exhibits and joint agency visitor services would not be possible. Crowding in the facility could make the experience unpleasant during peak periods. Parking in the small boat harbor would continue to be a problem for visitors and other boat harbor users.

Conclusion. This alternative would have a negative impact on the visitor experience. It would have no impact on scenic resources.

Socioeconomic and Visitation Impacts

Analysis. A no action alternative could have a modest dampening effect on tourism in Seward due to overcrowding at the existing visitor center and consequent reduction in quality of experience for tourists visiting the area. Visitation to the Kenai Fjords National Park has undergone rapid growth during the past several years. The park is an important component of visitor demand in the Kenai Peninsula region by both Alaska resident and nonresident visitors. With high visitation growth forecast into the future, the visitor industry in Seward is expected to expand regardless of actions taken by the National Park Service regarding facility development. Overcrowding could result in a slight reduction in the rate of growth in visitation and thereby diminish expected increases in economic activity in future years. Employment opportunities and income growth could be adversely affected, although at modest levels. Only minimal impacts would be imposed on the city's population. These are secondary effects associated with unrelieved congestion and consequent reductions in visitor experience.

Conclusion. While this alternative could reduce the growth of visitation to the visitor center and the potential economic benefits to the community, the overall impact would not be significant.

Access and Transportation Impacts

Analysis. Many visitors to the visitor center drop in as they tour the harbor area by foot. This visit is most often combined with other stops in the retail and restaurant core, and harbor sightseeing and fishing charters. Visitors are likely to park in the public parking for periods longer than their stay at the visitor center as they take in the other harbor attractions.

A general increase in visitation, based on the development of the Alaska Sea Life Center and an increase in the number of cruise ships calling at the Seward port will increase the number of visitors at the visitor center. However, with no improvement in the visitor center we would not expect that the average length of visit or the proportion of area visitors stopping at the visitor center would increase. Parking availability in the harbor area may become more difficult with the increase in visitors to Seward. However, the changes in the harbor facilities (i.e. new boat launch and relocation of the fuel dock, as described in existing conditions) may help address some of the parking shortfall.

Increases in the number of vehicles in town, based on the growth of tourism in the Kenai Peninsula and the development of the Alaska Sea Life Center, will result in more vehicular traffic in Seward. This may have a negative impact on pedestrians crossing Fourth Avenue from the public parking to harborside activities including the visitor center.

Conclusion. Without expanding parking in the harbor area, parking availability for visitor center guests, as well as for visitors particiapting in other harbor activities, will become increasingly difficult due to the increased visitor activity in Seward. Some of this will be addressed by the relocation of the fuel dock and the new boat launch.

Natural Resource Impacts

Analysis. The existing potential impact of floods, tsunamis, or seismic activity on visitors and personnel at the visitor center would continue. In addition to the measures discussed in the "Alternatives" chapter to reduce potential tsunami impacts, the existing location of the visitor center behind the small boat harbor jetty provides additional protection from tsunamis.

Based on the effects of the 1986 flood in Seward on the existing visitor center, the potential flooding impacts would be minimal. The 1986 flood did not damage the structural integrity of the visitor center, and the visitor center did not receive any water damage. The high water subsided within 24 hours and there was no long-term impact from the flooding (Stevens pers. comm.). Maintaining up-to-date emergency warning and evacuation procedures would reduce the potential impact from floods.

Conclusion. Components of ecosystems such as vegetation, wildlife, and wetlands would not be adversely affected by this alternative.

The potential impact of natural hazards such as flooding, tsunamis, and seismic activity on humans and property would continue. This risk would be reduced by implementing up-to-date emergency warning and evacuation procedures.

Infrastructure Impacts

This alternative would not have infrastructure impacts.

Impacts on Park Management and Operations

Analysis. Under the no action alternative, some baseline increases in park staff would be required in order to provide adequate services to an increasing number of visitors. The following additional positions would be required in Seward:

- 1 permanent bio-technician
  (The duties of this position would be inventory and monitoring of the park's natural resources; assessment of the condition of park resources; and the provision of accurate information to the public via park interpreters.)

- 1 permanent deckhand
  (The duties of this position would be to provide safe conditions on the park boat and serve as a backup in case of injury to the captain, in order to support park staff involved in inventory and monitoring of park resources.)

- 1 permanent maintenance worker

- 2 summer seasonal interpreters

The additional office space required for the first position listed above could not be provided in the already overcrowded visitor center/headquarters building. Office space for this employee would be provided through an increase in the park's recently leased additional office space in the Landing Building in the small boat harbor. The additional maintenance worker, deckhand, and seasonal interpreters listed above would require little or no office space.

Conclusion. Under this alternative, the continued separation of park offices between two buildings would make communication among park staff more difficult than if all offices were located in the same building.

Park staffing levels would be adequate to meet basic visitor needs, but improved interpretive services would not be provided.

ALTERNATIVE B : EXPAND EXISTING FACILITY FOR VISITOR CENTER (SITE 4) CONSTRUCT NEW NPS ADMINISTRATION BUILDING AT SITE 5

Impacts on Visitor Experience and Scenic Resources

Analysis. With the expansion of the visitor center at the current site, visitors would have more opportunities to obtain information about local public lands and facilities, watch audio-visual presentations, participate in educational programs, and engage interpretive exhibits. The experience could increase their awareness and inspire them to take greater care of park resources. The visitor would have the opportunity to become familiar with the park even if he or she could not experience it directly due to weather, time, or economic constraints.

With its close proximity to charter boats destined for the park fjords, this visitor center site provides optimum access for fjord sight-seers. By serving this group of park users, interpretation can build upon visitors' actual experience of the park and educate them about stewardship of park resources. This visitor center site is also most convenient for recreational boaters using the boat harbor and for people who are arriving by rail.

Because of the views from this location (views of boats moving in and out of the harbor; people catching and cleaning fish; marine mammals, birds, and fish in the bay; and distant views to the water, weather, and glacial-capped mountains), the visitor's experience of the interpretive exhibits in the center could resonate most strongly with a direct experience of the park marine landscape.

Preliminary feasibility studies indicate that the existing facility could be expanded while retaining a similar character and appropriate scale for the boat harbor. The building would retain its orientation to the street and harbor, and could maintain entrances on both east and west sides.

The NPS administration facility at site 5 would be similar in size to the visitor center. Both of the buildings could have a positive impact on the general character of the boat harbor.

Conclusion. This alternative would have a positive impact on the visitor experience, and a potentially positive impact on the district character.

Socioeconomic and Visitation Impacts

Analysis. Alternative B would have a modest positive impact on tourism and general economic activity in Seward due to expansion of visitor facilities and consequent improvement in the quality of experience for tourists visiting the area. Forecast visitation ranges for the visitor center are given for three alternative scenarios: low-, moderate-, and high-growth, as shown in Appendix B. The most plausible of the scenarios is the moderate-growth forecast of visitation.

Expansion of the visitor center and interpretation facilities from the current (no action) status to the size described in the action alternatives (from 5,000 to 9,500 square feet) would enhance visitor use, such that projected visitor demand can be handled over the forecast planning period. Relocation of the visitor center from site 4 to sites 3, 5, or 15 would not appreciably change the attractiveness to visitors, since all sites are near the small boat harbor.

Construction of facilities by the National Park Service would have primary (or direct) impacts on the regional economy. These would be beneficial in terms of stimulating employment and earnings in the Seward area. The long-term impacts of improving NPS facilities would be to reduce congestion and thereby improve the quality of the experience enjoyed by visitors. Impacts to the regional economy and population would be mostly secondary as the need for improved facilities is indirectly related to the growth in visitation to the region by Alaska residents and nonresidents. The tourism industry is expected to expand regardless of the actions taken by the National Park Service. Improving visitor experience would, nonetheless, generate economic benefits to the region. There would be no adverse socioeconomic impacts associated with alternative B.

Conclusion. Improvements to NPS facilities under alternative B would have modest positive impacts for the Seward area economy and population. Congestion at the visitor center would be reduced, thus improving visitor experience. With the exception of construction, which would result in primary economic impacts, the socioeconomic impacts of alternative B would be secondary, indirectly related to the growth of tourism in the region.

Access and Transportation Impacts

Analysis. This site alternative has good potential from a transportation and parking standpoint because of the ability to share parking with other uses and its proximity and visibility to charter boat passengers and cruise ship visitors. As described earlier, visitors stopping at the center are typically also taking in other attractions in the harbor area such as charter boat tours, shopping and dining. Therefore, some of the parking which is developed in this alternative could be combined with the general public parking. A cooperative parking arrangement with the city would be key to the successful development of this site.

Since the visitor center would offer guests more displays and activities than the current center, a longer average length of stay would result. Visitors are expected to spend an average of one hour at the new center. Peak parking demand will occur between 5:00 and 6:00 pm when the charter boats return to harbor. As noted earlier, most visitors are expected to take in other attractions while in the area. Once parked in the public parking area, they would not be likely to move their vehicles to general public parking spaces as they visit other establishments. Likewise, visitors who are already in the harbor area are not expected to move their already parked cars into special visitor center spaces when they drop by the center. Therefore, only part of the on-site parking supply need be designated as visitor center parking. Visitor center parking designations could include the following:

- long-term parking for employees (approximately 15 spaces)
- short-term parking (90 minute limit) for approximately 10 vehicles

- disabled parking spaces for visitor center guests.

The remaining on-site parking spaces could be made available to the general public, for medium-term parking.

The proposed parking supply would meet the city guidelines and, given the shared use with other public parking in the vicinity, would not have a negative impact on parking in the area. The visitor center itself probably would not have a negative impact on traffic in the area, but rather responds to the general increase in visitors to the area. The increase of traffic that results from increasing visitors to Seward may have an impact on pedestrian connections across Fourth Avenue to the visitor center, which would be mitigated by the development of the pedestrian crossing. A bus loading zone for two buses would accommodate visitors arriving by bus.

Conclusion. The development of alternative B, as with other development alternatives, is not expected to contribute to an increase in traffic. The site takes advantage of high visibility in the harbor area, thus maximizing pedestrian access and minimizing the need to move vehicles once parked in the harbor area. However, the longer average stay at the center will create an increased demand for parking. The development of the proposed supply addresses this increased parking demand. The development of a clear pedestrian crossing to parking across Fourth Avenue, a cooperative parking agreement with the city and the expanded bus dropoff zone would effectively mitigate potential traffic impacts.

Natural Resource Impacts

Analysis. Development of this alternative would continue to expose NPS personnel and visitors at the visitor center to the potential impacts associated with floods, tsunamis, or seismic activity. The relative risk to personnel and park visitors would be the same as alternative A.

Conclusion. Components of ecosystems such as vegetation, wildlife, and wetlands would not be adversely affected by this alternative.

The potential impact of natural hazards such as flooding, tsunamis, and seismic activity on humans and property exists at the project sites. This risk would be reduced by complying with local and federal building codes to ensure safety from those hazards, and by implementing up-to-date emergency warning and evacuation procedures.

Infrastructure Impacts

Analysis. The expansion of the building would require relocation of the city water main east and south of the building. Expansion of the building in a westerly direction is prohibitive due to the existence of the sanitary sewer line. However, feasibility studies for building expansion do not indicate a need for building towards the west. Underground power and telephone east and south of the building might also need to be relocated to remain outside the building footprint. The sewer line, from the existing restrooms east of the building, flows to a pump station within the existing visitor center. This sewer line might require relocation or revision if the building expands eastward. Drainage would not require revision at this site since the roof drains currently empties onto the ground.

A restaurant currently occupies the administration building site for this alternative. Existing water utility services provided for the restaurant could be utilized by the administration building. A new, larger sanitary sewer pump station would probably be required to hook up to the sanitary sewer force main. The building location as developed does not conflict with the telephone line, which is underground and is located approximately down the middle of the site in a north to south direction. (This telephone main cannot be built upon and relocation costs would be prohibitive.) The parking area for the administration building would require minor regrading, paving and water quality treatment of the storm drainage prior to discharge. Discharge could drain to an existing ditch west of the site.

Conclusion. Connection to all utilities is feasible for this alternative. The alternative would not have a significant impact on the environment or city infrastructure.

Impacts on Park Management and Operations

Analysis. The increased size of the visitor center in this alternative would allow a larger number of visitors to use the facility. In addition, the increased number, variety, and quality of the exhibits would encourage visitors to spend more time in the visitor center. Currently, the average visitor is estimated to spend approximately 30 minutes in the visitor center, and under this alternative the average stay would be expected to increase to approximately 60 minutes. The increase in both number of visitors and the average length of stay in the visitor center would require an increase in park staff to serve visitors' needs. The following positions would be required in Seward, in addition to the positions listed under alternative A:

- 1 permanent maintenance worker
- 2 summer seasonal park rangers (interpretation)
- 1 summer seasonal custodial worker

Conclusion. Some additional office space would be required for the additional seasonal interpreters. Location of interpreters' offices with the visitor center separate from other administrative space would be less efficient than keeping all functions together. Visitor services and interpretation would be improved as a result of the visitor center expansion and the addition of 2 summer seasonal interpreters.

ALTERNATIVE C: EXPAND EXISTING FACILITY FOR VISITOR CENTER (SITE 4) CONSTRUCT INTERAGENCY ADMINISTRATION BUILDING AT SITE 3

Impacts on Visitor Experience and Scenic Resources

Analysis. This alternative has the same positive impacts on the visitor experience, and has the same locational advantages for the visitor as alternative B.

The National Park Service and Forest Service administration building on site 3 would be an appropriate scale for the size of the site. It could be built in a style similar to the existing visitor center to underscore the relationship between the two facilities.

Conclusion. This alternative would have a positive impact on the visitor experience, and a potentially positive impact on the local district character.

Socioeconomic and Visitation Impacts

Analysis. As in alternative B, alternative C would have a modest positive impact on tourism and general economic activity in Seward due to expansion of visitor facilities and consequent improvement in the quality of experience for tourists visiting the area. These are secondary effects that result from reducing congestion at NPS facilities.

Conclusion. Improvements to NPS facilities under alternative C would have modest positive impacts for the Seward area economy and population. With the exception of construction, which would result in primary economic impacts, the socioeconomic impacts of alternative C would be secondary, indirectly related to the growth of tourism in the region.

Access and Transportation Impacts

Analysis. As with alternative B, alternative C has good potential from a transportation and parking standpoint because of its proximity and visibility to charter boat passengers and cruise ship visitors. This development scheme puts the visitor center parking farther from the visitor center. Typically an “acceptable” walking distance from this type of use would be 500 to 800 feet. However, if the developed parking supply is added into the general public parking supply, then parking for the visitor center could be accommodated anywhere within the public lots across Fourth Avenue from the visitor center. The new parking could be designated as medium-term parking and more short term parking could be available closer to the visitor center. The proposed parking supply could exceed city guidelines by up to 40% and, developed to the extent possible, would have a positive impact on parking availability in the harbor area.

As with alternative B, the visitor center itself would not have a negative impact on traffic in the area, but would respond to the general increase in visitors to the area. The increase of traffic that results from increasing visitors to Seward may have an impact on pedestrian connections across Fourth Avenue to the visitor center, which would be mitigated by the development of a safe pedestrian crossing.

Conclusion. The development of alternative C, as with other development alternatives, is not expected to contribute to an increase in traffic. The site takes advantage of high visibility in the harbor area, thus maximizing pedestrian access and minimizing the need to move vehicles once parked in the harbor area. However, the longer average stay at the center will create an increased demand for parking. The development of the proposed supply addresses this increased parking demand and improves the general supply in the harbor area. The development of a clear pedestrian crossing to parking across Fourth Avenue, a cooperative parking agreement with the city and an expanded bus dropoff zone would effectively mitigate potential traffic impacts.

Natural Resource Impacts

Analysis. Construction of the administrative building and parking lot at site 3 would result in approximately 40,000 square feet of impervious surface. This could create a beneficial impact by reducing the amount of sediment that is currently being discharged into the lagoon outlet channel from the existing gravel parking lot.

Surface water runoff from the proposed parking lot and building is not expected to significantly increase the amount of pollutants entering the channel because of the surface water treatment features discussed in the “Alternatives” chapter and because of the small size of the site (approximately 1.0 acre). In addition, the runoff coefficients for gravel surfaces and asphalt surfaces are considered to be the same for sheetflow runoff calculations (Overton and Meadow 1976 in Washington Department of Ecology 1992). Therefore, the amount of surface water runoff from the paved lot would be equivalent to the existing gravel-covered lot.

Development of this alternative would continue to expose NPS personnel and park visitors at the visitor center to the potential impacts associated with floods, tsunamis, or seismic activity. The parking lot and administrative building would not be located behind the small boat harbor jetty, and people using these facilities might be at a slightly higher risk for tsunamis than with alternatives A and B.

Conclusion. Components of ecosystems such as vegetation, wildlife, and wetlands would not be adversely affected by this alternative. Wetlands do not exist within the proposed project area. Wildlife and vegetation are drastically reduced or non-existent because of the disturbed nature of the gravel-covered lots. Water resources would be protected by maintaining a buffer around the lagoon outlet channel and ensuring impervious surface water runoff is treated before discharging into the channel.

The potential impact of natural hazards such as flooding, tsunamis, and seismic activity on humans and property exists at the project sites. This risk would be reduced by complying with local and federal building codes to ensure safety from those hazards, and by implementing up-to-date emergency warning and evacuation procedures.

Infrastructure Impacts

Analysis. The impacts of expanding the existing visitor center building would be the same as for alternative B.

The development of site 3 would require the planned removal of the radio antenna. Utility records show no utilities crossing this site. Power and telephone are available overhead from Van Buren Street. Water is available from Van Buren Street, but a new water meter would be required. Sanitary sewer service would require installation of a sewer pump station on the site to pump to the City force main on Van Buren.

Conclusion. Connection to all utilities is feasible for this alternative. The alternative would not have a significant impact on the environment or city infrastructure.

Impacts on Park Management and Operations

Under this alternative, impacts on park management and operations would be the same as in alternative B.

ALTERNATIVE D: CONSTRUCT NEW VISITOR CENTER AND INTER-AGENCY ADMINISTRATION BUILDING AT SITE 3

Impacts on Visitor Experience and Scenic Resources

Analysis. This alternative provides similar informational and interpretive opportunities as alternatives B and C, and thus has similar positive impacts. However, the visitor experience at this location would be less related to the marine environment because views from this location are more removed from the bay. Condominiums block parts of the view, and other vistas could become obscured if waterfront sites are built upon.

The distance from the south dock is approximately 800 feet. At this distance, some pedestrians on tight schedules might not have time to "drop in" to the visitor center. However, the center's visibility from Third Avenue, space for parking, and proximity to a city parking area would make the location convenient for those with private vehicles.

The visitor's experience at this site could include the riparian environment of the stream outlet, and spawning coho salmon during part of the year.

Scenic values for this site are not as high as for site 4 or site 15. Breaking up the building's massing into two or more volumes would reduce its visual impact, and make it appear less institutional.

Conclusion. This alternative would provide more opportunities than the existing facility, and thus improve the visitor experience. Some of these positive impacts might be offset by the more distant relationship with marine activities and view. The facility could potentially have a positive impact on the local district character.

Socioeconomic and Visitation Impacts

Analysis. Under alternative D, the visitor center would be relocated from the immediate harbor to a nearby location also on Fourth Avenue. The change in location to a site away from the immediate locus of activity at the harbor is not likely to have a significant adverse impact on visitation. The site is within walking distance of the small boat harbor. Thus, alternative D would have a modestly positive impact on tourism and general economic activity in Seward due to expansion of visitor facilities and consequent improvement in the quality of experience for tourists visiting the area. These are secondary effects associated with reducing congestion at NPS facilities.

Conclusion. Improvements to NPS facilities under alternative D would have modest positive impacts for the Seward area economy and population. With the exception of construction, which would result in primary economic impacts, the socioeconomic impacts of alternative D would be secondary, indirectly related to the growth of tourism in the region.

Access and Transportation Impacts

Analysis. This site alternative would probably experience more visitors driving to and parking at the site, as the walking distance from the small boat harbor, retail and restaurant facilities is farther than is commonly accepted. This may also affect visitation at the center. However, because the parking supply would be contiguous with the city parking lots, the shared parking would be a factor and probably be adequate for the site except during extremely high visitation to Seward, such as during the annual salmon derby. The increase in visitors driving to the site would add more traffic to the harbor area streets. The proposed parking supply would meet the city guidelines.

The development of a clear pedestrian crossing across Fourth Avenue to the public transit stops would effectively mitigate potential traffic impacts on pedestrians.

Conclusion. The site is less visible from the harbor than alternatives A, B and C. More visitors would drive specifically to the site than those alternatives. However, once parked, many would walk to other harbor activities. The longer average stay at the center will create an increased demand for parking. The development of the proposed supply addresses this increased parking demand and improves the general supply in the harbor area.

Natural Resource Impacts

Analysis. Impacts associated with this alternative are similar to those described for alternative C. The visitor center under alternative D would not be located behind the small boat harbor jetty as in alternatives B and C (see the Seward Environmental Constraints maps on pages 69 and 71). Therefore, visitors using the visitor center and parking lot under alternative D might be at a slightly higher risk from tsunami waves than with alternatives A, B, and C.

Conclusion. Components of ecosystems such as vegetation, wildlife, and wetlands would not be adversely affected by this alternative. Wetlands do not exist within the proposed project area. Water resources would be protected by maintaining a buffer around the lagoon outlet channel and ensuring impervious surface water runoff is treated before discharging into the channel.

The potential impact of natural hazards such as flooding, tsunamis, and seismic activity on humans and property exists at the project sites. This risk would be reduced by complying with local and federal building codes to ensure safety from those hazards, and by implementing up-to-date emergency warning and evacuation procedures.

Infrastructure Impacts

The impacts of developing site 3 are the same as in alternative C.

Impacts on Park Management and Operations

Analysis. Under this alternative, the increased size and improved exhibits of the visitor center would be the same as in alternative B and would have the same impact on visitor usage of the visitor center. The need for increased staff to serve visitors would be the same as for alternative B.

Under this alternative, all visitor center and office space requirements would be provided in one building. The consolidation of all offices into one building would facilitate better communication and coordination among park staff. In addition, the presence of the Forest Service offices in the same building would facilitate better communication and coordination between the two agencies. Under this alternative, the sharing of some facilities (such as common areas, library, and computers) by the two agencies also would reduce duplication of facilities and reduce operational costs.

Conclusion. Impacts on visitor services would be the same as alternative B. The consolidation of all offices for park staff into one building and the sharing of facilities with the Forest Service would facilitate better communication among staff of the two agencies and more cost-effective use of facilities.

ALTERNATIVE E: CONSTRUCT NEW VISITOR CENTER AND INTER-AGENCY ADMINISTRATION BUILDING AT SITE 15

Impacts on Visitor Experience and Scenic Resources

Analysis. This alternative provides similar information and interpretive opportunities as alternatives B, C, and D, and thus has similar positive impacts. Because the site offers a panoramic view to a relatively natural aspect of the bay, the visitor would enjoy a scenic experience related to the park's marine resources.

The adjacent stream could provide an interpretive opportunity of riparian environments, though proximity of the bicycle path to the stream limits development of buffer areas.

The distance from the south dock (near the south end of the small boat harbor) to site 15 is approximately 1,200 feet. This is farther than most pedestrians will generally walk. Charter boat users on tight schedules would probably eliminate the visitor center stop; those with more time would probably move their vehicle to the visitor center parking lot or take a shuttle if it were available. As no sidewalk or trail connects this site to the small boat harbor, successful implementation of the alternative would require that the city construct a pedestrian connection which safely crosses the existing boat launch ramp.

Because of the site's proximity to the city waterfront camping areas, and its linkage to these with a paved trail, campers might be more likely to use the visitor center and participate in evening programs.

Scenic values for this site are high, and the site is contiguous with other municipal park lands. Placement of a large building on the site would block some views that are currently enjoyed from Fourth Avenue. The combined visitor center and joint administration building is fairly large for the area. Breaking up the building massing into two or more volumes would reduce the facility's visual impact, and make it appear less institutional.

Conclusion. This alternative would provide more opportunities than the existing facility, and provide a scenic experience for the visitor. Positive impacts for some visitors may be offset by the distance from the marine access point. While there could be impacts to the scenic qualities of the area, they would not be significant if the new facility is carefully designed and sited.

Socioeconomic and Visitation Impacts

Analysis. Under alternative E, the visitor center would be relocated from the harbor to the ballfield site south of the small boat harbor. The change in location to a site away from the immediate locus of activity at the harbor could possibly result in reduced visitation at the park facility. The walking distances from the small boat harbor are longer than any of the other alternative sites and without sidewalks. Moreover, users of the small boat harbor on tight schedules with charter boat or rail connections may not find time to use the facility. However, use of a shuttle bus (an augmented system may be implemented to serve the Alaska Sea Life Center and other locations) and construction of a connecting path to the harbor would make the site more accessible to park visitors. Thus, alternative E would be expected to have a modest positive impact on tourism and general activity in Seward due to expansion of visitor facilities and consequent improvement in the quality of experience for tourists visiting the area. These are secondary effects associated with reducing congestion at NPS facilities.

Conclusion. Improvements to NPS facilities under alternative E would have modest positive impacts for the Seward area economy and population. With the exception of construction, which would result in primary economic impacts, the socioeconomic impacts of alternative E would be secondary, indirectly related to the growth of tourism in the region.

Access and Transportation Impacts

Analysis. This alternative is located the farthest from the small boat harbor. Because the parking would not be developed contiguous to other public parking, the visitor center parking would have to be most self-contained of all the site alternatives. To accommodate this time restrictions can be imposed to the on-site parking. Some long term parking could be set aside for employees, perhaps monitored by a permit system. All other parking could be limited to short term parking (two hour maximum) thus helping to contain visitor center parking on-site by encouraging frequent turn-over and discouraging shared parking with other uses in the vicinity. Enforcement of parking restrictions would be required. The proposed parking supply has the potential of exceeding city guidelines by 25%.

The lack of a pedestrian connection to the small boat harbor is an issue that would require cooperation with the city for construction of a safe pedestrian route from the harbor area. The driveway from D Street/Ballaine Boulevard would need to be a minimum of 100 feet from the intersection with Fourth Avenue. Both driveways would be located as far from the intersection of Fourth Avenue and D Street/Ballaine Boulevard as possible in order to minimize conflicts with the intersection.

Conclusion. This site, located farthest from the harbor, would contribute more traffic along Fourth Avenue than the other development scenarios, as visitors drive from the harbor area to the visitor center. A pedestrian route developed on the east side of Fourth Avenue would help reduce some of the vehicular traffic and provide a safer pedestrian connection from the harbor area. Parking, developed to the extent possible on site and limited to short term periods, would help contain spill-over on to other public parking. The time limits would discourage parking from other nearby uses.

Natural Resource Impacts

Analysis. Development of this alternative would expose NPS personnel and park visitors to a slightly greater risk from the potential impacts associated with tsunamis, flooding, or seismic activity than the other alternatives. The greater potential for natural hazards at site 15 is based on the following:

- This is an area where the ground was fractured during the 1964 earthquake (as documented by photographs in the U.S. Geological Survey Professional Paper 542-E).
- The Seward 2010 Comprehensive Plan identifies a high seismic risk for this location. The plan's management guidelines recommend that development of habitable buildings be restricted in this area.
- Site 15 is closer to the bay and less protected from tsunamis by existing structures and landforms than the other proposed project sites (see Figure 13).
- Site 15 is closer to the bay and subject to flooding from the outlet channel and infrequent high storm tides.

Site-specific analysis would be required to determine appropriate building designs to ensure the same protection from floods and seismic activity as compared to the other sites.

Water resources in the lagoon outlet channel would be protected by implementing the construction-related mitigation measures and design features of the facilities as described in the "Alternatives" chapter.

Conclusion. Components of ecosystems such as vegetation, wildlife, and wetlands would not be adversely affected by this alternative. Wetlands do not exist within the proposed project area. Water resources would be protected by maintaining a buffer around the lagoon outlet channel and ensuring impervious surface water runoff is treated before discharging into the channel.

The potential impact of natural hazards such as flooding, tsunamis, and seismic activity on humans and property is slightly higher on this site than on the other alternative sites. This risk would be reduced by complying with local and federal building codes to ensure safety from those hazards, and by implementing up-to-date emergency warning and evacuation procedures.

Infrastructure Impacts

Analysis. Water, power and telephone are available on Fourth Avenue to the west of the site or along the south of the site on Ballaine Boulevard. The sanitary sewer force main crosses the site at a diagonal approximately 120 feet east of the edge of Fourth Avenue on the north end of the site and 200 feet east of Fourth Avenue on the south end of the site. The building as located on the site plan would be able to be built without relocation of the sanitary sewer force main. The building would require a sanitary sewer pump station to connect to the existing city force main.

Conclusion. Connection to all utilities is feasible for this alternative. The alternative would not have a significant impact on the environment or city infrastructure.

Impacts on Park Management and Operations

The impacts of this alternative would be the same as those of alternative D.

CUMULATIVE IMPACTS OF THE PROPOSED VISITOR CENTER ACTIONS

Socioeconomic

A potential cumulative impact analysis assumes that improvements to NPS facilities take place along with development and operation of the Alaska Sea Life Center, a new small boat harbor at Nash Road, and new terminal facilities for cruise ships (and other vessels) at the AKRR Marine Terminal, as well as expansion of tour boat operations in the small boat harbor in Seward.

The high-growth scenario for projecting visitation at the visitor center and Exit Glacier was based on expected increases in visitation, particularly from arriving cruise ship passengers, due to development of the Alaska Sea Life Center. Similarly, the projection of visitors was based on the assumption of increased cruise ship dockings and extended in-port visits by cruise ships and their passengers.

Cruise ship dockings would be facilitated by expansion and improvement of terminal facilities at the AKRR Marine Terminal, which has been a considered action. More cruise ships could be accommodated at one time and thus stimulate additional vessel calls at Seward. This development could result in a further increase in tourism.

Expansion of small boat moorage facilities (such as envisioned by a private developer at Nash Road) could relieve congestion at the small boat harbor in Seward. Part of the rationale for establishing a new small boat moorage facility is to address the specific needs of recreational boaters, fishermen, and tour boat operators, particularly as the number of participants in these categories increases. At present these needs cannot be met within the moorage space in the small boat harbor.

The cumulative impacts associated with these activities would be to stimulate tourism in the Seward area beyond the levels anticipated under any of the action alternatives alone. However, the effects of NPS actions were considered to be secondary or indirectly related to tourism growth in the Seward area. While the increased visitation from cruise ship passengers was assumed in the visitor projections for the high-growth scenario, the cumulative effect of the various developments and activities might result in a large (possibly 20% to 30%) increase in the number of visits to park facilities above that projected for the high-growth scenario. (Current cruise ship bookings exceed the levels projected in 1993.) Improved terminal facilities and other tourism infrastructure, including the Alaska Sea Life Center, small boat moorage and handling facilities, and additional tour vessels could stimulate increases in cruise ship passenger arrivals as well as other visitors using private and public transportation modes beyond the levels anticipated under any of the action alternatives. Such increases in visitation would have a positive impact on regional economic activity. Employment and personal income would increase substantially above levels anticipated for any of the action alternatives alone. The impact on population in the region would be positive in the sense that the activities would contribute to long-term stability of the resident population.

Infrastructure

The cumulative impacts of the above developments on community infrastructure, particularly highways and streets, could be substantial due to increases in visitor-related traffic including heavy vehicles (RVs, buses, and trucks). Higher visitor spending levels and associated sales and hotel/motel tax and property tax revenues would confer fiscal benefits to the city of Seward, offsetting, at least in part, increases in outlays for municipal services and facilities.

Access and Transportation

As noted in the June 1994 Draft Environmental Impact Statement (DEIS) for the Institute of Marine Science (IMS) Infrastructure Improvement Project (referred to as the Alaska Sea Life Center), the cumulative effects of the IMS project and other tourist-related activities would be congestion and noise from increased traffic. The DEIS cited above estimates these cumulative effects to be “moderate.”

Increased parking demand would also be a cumulative effect. If visitation grows within the range predicted for the visitor center, all of the action alternatives have the potential of meeting parking demands that would be created by visitor center users. However, if tourism growth is greater than estimated, parking demand may exceed that which can be supplied in all alternatives. Parking needs would therefore be re-evaluated in the design phase of the project.

	Impacts on Visitor I & Scenic Reso	ts on Park Management and Operations	Construction Costs*
Alternative A No action	-negative impacts from more frequent crowdi -lack of interpretive cap -no impact on scenic re	sitions on park staff would uired require additional leased space, and contribute to lty in communicating en two office spaces	-none
Alternative B Expand existing facility for visitor center, new NPS administration building at site 5	-site is ideal for interpre ties, views and for pro charter boat users and -new buildings could ha scenic impact on the c harbor area -positive impact on visi experience	require a 9-person increase f, including seasonal custo- permanent maintenance and retive staff. ting administrative staff may s efficient.	$8,717,000
Alternative C Expand existing visitor center at site 4, new interagency administration building at site 3	-same as alternative B	milar impacts to alternative B	$11,843,000
Alternative D New visitor center and administration building at site 3	-positive impact from e facilities -visitor's experience les marine environment -condominiums block s future development c further effects -potential for interpreti environment	staffing impacts to alterna- B & C tor and office space require- under one roof sharing with Forest Service facilitate interagency unication	$12,062,000
Alternative E New visitor center and interagency administration building at site 15	-positive impacts simila alternatives -site is farthest from ha fore less convenient t users -excellent marine views -potential loss of open to bay	s alternative D	$12,248,000

*Comparative cost analysis for the visitor center alternatives car
No impacts to cultural resources anticipated for any of the alter

TABLE 3. IMPACT SUMMARY FOR VISITOR CENTER AND HEADQUARTERS

	Impacts on Visitor Experience & Scenic Resources	Socioeconomic & Visitation Impacts	Access & Transportation Impacts	Natural Resource Impacts	Infrastructure Impacts	Impacts on Park Management and Operations	Construction Costs*
Alternative A No action	-negative impacts from greater & more frequent crowding -lack of interpretive capacity -no impact on scenic resources	-overcrowding could have dampening effect on tourism, diminish expected increase in economic activity	-parking in small boat harbor would be a continuing problem without long-term parking policy changes -increasing traffic will impact pedestrians crossing 4th Avenue	-no known impacts -potential hazards from natural events such as seismic and tidal activity would continue	-no impacts	-five positions on park staff would be required -would require additional leased office space, and contribute to difficulty in communicating between two office spaces	-none
Alternative B Expand existing facility for visitor center, new NPS administration building at site 5	-site is ideal for interpretive facilities, views and for proximity to charter boat users and pedestrians -new buildings could have positive scenic impact on the character of harbor area -positive impact on visitor experience	-modest positive impact on tourism and economic activity	-good potential for shared parking with maritime tourism; adequate parking provided to meet city guidelines -increased parking demand from longer average stays would be met by proposed increase in parking	-no known impacts -potential hazards from natural events would continue	-need to relocate water main -telephone line crosses administrative building site; no conflict with proposed site.	-would require a 9-person increase in staff, including seasonal custodians, permanent maintenance and interpretive staff. -separating administrative staff may be less efficient.	$8,717,000
Alternative C Expand existing visitor center at site 4, new interagency administration building at site 3	-same as alternative B	-same as alternative B	-good potential for shared parking with maritime tourism; parking could exceed city guidelines by up to 40% -parking would be farther from visitor center, but higher number of spaces would have a positive impact on parking availability	-potential hazards from natural events would continue -potential impacts to water resources would be mitigated; potential for overall positive impact	-power, water & phone available; minor hook-up facilities needed -sewer pump station required	-very similar impacts to alternative B	$11,843,000
Alternative D New visitor center and administration building at site 3	-positive impact from expanded facilities -visitor's experience less related to marine environment -condominiums block some views, future development could have further effects -potential for interpreting riparian environment	-modest positive economic impacts from tourism -relocation from harbor not likely to have significant impacts apart from possibly discouraging some drop-ins	-good potential for shared parking with maritime tourism and city parking lots; adequate parking provided to meet city guidelines	-water resource impacts similar to alternative C -risk of damage from tsunami may be higher (no jetty protection) -other potential hazards same as alternative C	-same as alternative C	-similar staffing impacts to alternatives B & C -all visitor and office space requirements under one roof -office-sharing with Forest Service would facilitate interagency communication	$12,062,000
Alternative E New visitor center and interagency administration building at site 15	-positive impacts similar to other alternatives -site is farthest from harbor, therefore less convenient to boat harbor users -excellent marine views for facility -potential loss of open space views to bay	-distance from harbor could reduce visits and thus tourism income, but might also attract visitors from campgrounds	-site location could contribute more traffic from boat harbor -parking requirements may be higher; however, proposed supply could exceed city guidelines by up to 25% -need for safe pedestrian connection to boat harbor	-highest risk from natural events –earthquake history and high seismic risk; –least protection from tsunami danger; -highest potential of flooding from lagoon outlet and storm tides -potential water resource impacts would be mitigated	-power, water and phone available; minor hook-up facilities needed -sanitary sewer force main crosses site; no conflict with proposed site plan -sewer pump station required	-same as alternative D	$12,248,000

*Comparative cost analysis for the visitor center alternatives can be found in appendix D

No impacts to cultural resources anticipated for any of the alternatives. Any previously unknown resources uncovered during construction would require accessioning, cataloguing, and preservation activities, and increased curatorial space.

The following potential mitigating measures are intended to reduce the cumulative effect of visitor traffic:

- Encourage employees to walk, bike, or carpool to work. Site employees would be encouraged to travel by a mode other than driving alone.
- Preferential parking for vehicles with high numbers of occupants: Certain segments of the public parking lots, preferably those considered most convenient to harbor activities and retail, could be designated for vehicles with a high number of occupants. Publicity and enforcement activities would be key to the success of such a program.
- Pricing policy for public parking spaces: Instituting a pay parking policy for public parking spaces in the harbor area could reduce the number of vehicles in the harbor area, particularly if accompanied by more frequent public transit (see below) and the addition of satellite parking lots.
- Increased public transit: Increased transit service in response to increased visitor activity will reduce the dependence on personal vehicles for travel between the various attractions in Seward.
- Institute one-way couplet for major north-south route: Potential for increased intersection conflicts or increased delay caused by increasing traffic volumes might be reduced by conversion of parts of Third and Fourth Avenues to a one-way couplet. Impacts to property access and businesses would require additional consideration.

Abandonment of boat ramp and fuel dock in harbor area: With new facilities offered on the other side of the harbor, these existing facilities could be abandoned (depending on the capacity of the new facilities). The demand for parking to accommodate boat trailers in the harbor area would be reduced, thus making more parking available for the increasing number of non-boat towing visitors.

Natural Resources

With the expected expansion of the tourism industry in Seward, additional facilities such as restaurants, hotels, and gift shops are likely to be built within the floodplain near the small boat harbor area.

Development of the proposed action would represent a minor contribution to the cumulative floodplain impact if numerous additional sites are developed in the floodplain near the small boat harbor area.

ENVIRONMENTAL CONSEQUENCES OF EXIT GLACIER ALTERNATIVES

ALTERNATIVE A: NO ACTION

Impacts on Visitor Experience and Scenic Resources

Analysis. In the no action alternative, the anticipated growth in visitation would change the experience from what it is today. With the numbers of visitors projected to more than double in the next fifteen years, the no action alternative would result in a more crowded experience. With the no action alternative, within fifteen years these crowded conditions would prevail during most of the summer season.

Many visitors would not be able to find a parking place during the peak season. Overcrowding in the parking area would cause frustration to the visitor and would encourage roadside parking. This type of parking would make it necessary for visitors to walk a fair distance on the road. Roadside parking could also adversely affect the scenic quality of the area.

The main trail would become more congested, with a steady stream of people traveling both directions during peak times. An increase in undesignated trail use could adversely affect scenic qualities of the trails. Monitoring safety at the toe of Exit Glacier could become a greater problem for park rangers. Because the accessible trail currently terminates before the glacial toe and outwash plain come into view, those needing a barrier-free trail would still be deprived of scenic access to these features.

The tiny existing visitor contact station could be inadequate to serve visitor demand, and the current problem with odors at the vault toilets would worsen.

Conclusion. It is expected that the no action alternative would have a negative effect on the visitor experience at Exit Glacier, due to crowding and lack of adequate facilities. Without management of growing visitor use, scenic resources could be adversely impacted.

Socioeconomic and Visitation Impacts

Analysis. The no action alternative could have a modest dampening effect on tourism in the Seward area due to inadequate parking, bus conflicts, and vehicle circulation problems at Exit Glacier and consequent reduction in quality of experience for tourists visiting the area. With high visitation growth to the Seward area forecast into the future, the visitor industry in Seward is expected to expand regardless of actions taken by the National Park Service regarding facility development. The impact of overcrowding under the no action alternative would be to reduce the quality of visitor experiences at NPS facilities. This could result in lower visitation growth and thereby diminish expected increases in economic activity in future years. Employment opportunities and income growth would be adversely affected, although at modest levels. Only minimal impacts would be imposed on the city's population.

Conclusion. The no action alternative has the potential to slightly inhibit economic growth, though the overall impact is not considered to be significant.

Access and Transportation Impacts

Analysis. The existing supply of approximately 80 parking spaces is not sufficient to meet current peak day needs. It is estimated that by the year 2008 approximately 135 vehicles could be seeking parking spaces on a normal summer day. (See Appendix B for parking projection methodology). In 1994, there were approximately 12 days when vehicles could not find available spaces. Circulation would continue to be confusing, and extra staff would be required to direct and monitor traffic and parking. Improvements to Exit Glacier Road might result in increased RV and bus traffic and need for parking. Without a separate designated parking area for buses, cars and RVs would continue to use spaces designated for buses, and buses would continue to take up other vehicle spaces.

Conclusion. The overcrowding of the parking area will intensify as visitation levels increase, thus resulting in more spillover on to the road area. Eventually, visitors will either have to turn back because of a lack of parking accommodations or will park in areas that may damage vegetation.

Natural Resource Impacts

Analysis. Vegetation — Negative impacts on vegetation would be associated with the projected increase of visitors in the Exit Glacier area. The volume of foot traffic would continue to cause a loss of herbaceous ground cover along trails, especially the Harding Icefield trail. Use of undesignated trails in the Exit Glacier area and along the Harding Icefield trail would also occur to a minor degree as some visitors disperse to seek solitude from the more heavily used nature trail and Harding Icefield trail. Increased foot traffic might result in the development of multiple trails along existing trails.

Impacts on vegetation are not expected to be significant because the area of vegetation estimated to be lost from undesignated trail use would likely be less than 1 acre. This is a small amount considering the vast acreage of vegetation cover in the area. In addition, the National Park Service would continue to maintain and upgrade trails to encourage visitors to remain on existing trails, and to temporarily close trails during periods when trails are most susceptible to damage.

Analysis. Wildlife — Impacts on wildlife are associated with the increased number of visitors expected in the Exit Glacier area under this alternative. Increased visitor numbers would place more people on the hiking trails and would produce more vehicle traffic along the park entrance road. The potential impacts from the increased trail and road use would be (1) the continuation of temporary displacement of wildlife such as bear and moose from summer seasonal habitats in the Exit Glacier area, and (2) the potential increase in the number of human and bear/moose contacts.

NPS biologists have reported that park visitation during the summer at the Exit Glacier area has caused seasonal displacement of black bear and moose from portions of the Exit Creek drainage. The increased number of park visitors would cause black bears to move to the higher surrounding mountainsides and other river valleys less used by humans. Moose would move to other areas such as the broadleaf shrub habitats south of Exit Creek and in the Paradise River and Resurrection River valleys. The projected increased visitor use during the fall could delay the return of black bears and moose from Paradise River and other areas to Exit Creek.

The reported displacement of black bears and moose is consistent with research that indicates that large mammals such as grizzly bears, elk, caribou, and deer avoid areas of more intensive human use such as along roads and trails (Albert and Bowyer 1991, Cassirer et al. 1992, Curatolo and Murphy 1986, Interagency Grizzly Bear Council in National Park Service 1993, and Jones & Stokes Associates 1991). These studies indicate that the extent of displacement does not extend much beyond 30 to 670 meters (100-2,200 feet) from the human use area (such as roads and trails), depending on the area of study, the species, and the type of human use.

Therefore, based on the observations at Exit Glacier and research done elsewhere, black bears and moose would continue to be temporarily displaced from summer habitat along Exit Creek. The amount of habitat affected by this displacement is minimal as approximately 40 acres of tall shrub and deciduous forest is associated with the Exit Glacier use area (nature trail, ranger contact station, and parking lot).

The effect of the temporary displacement of black bears and moose is not expected to significantly affect regional populations. The displacement is not considered significant because:

- A large extent of other suitable habitat exists along Paradise River, Resurrection River, and adjacent mountain slopes. Willow shrub vegetation communities south of Exit Creek provide more favorable browsing areas for moose than the cottonwood, alder, and willow shrub communities between Exit Creek and the park entrance road.

- The alternative would retain visitor activity in an area where seasonal wildlife displacement currently exists.

- Park visitors typically do not venture into the adjacent areas that provide habitat for bear and moose. Flows in Exit Creek help to isolate the moose and black bears south of Exit Creek from park visitors, reducing the potential for further displacement.

- Moose are not known to calve in the Exit Glacier area served by NPS facilities.

Although displacement of bears and moose might occur, this does not eliminate the potential for contact between humans and bears or moose. Contact between bears and humans might occur in the Exit Glacier area and along the Harding Icefield trail. Confrontations are most likely to occur (1) when the terrain and vegetation create short sight distances, (2) during the summer when black bear sows and cubs are occasionally seen in the nature trail area, and (3) as bears become more habituated to human food.

Most of the park visitor use occurs in the summer and along the open trails between the ranger contact station, the interpretive shelter, the nature trail, and the Exit Creek floodplain. The National Park Service would continue to implement measures to monitor the movement of bears in the area, to close trails when increased bear activity is occurring in the Exit Glacier area, to minimize the habituation of bears to human food, and to educate visitors about bear behavior and activity. Therefore, the potential contact between bears or moose and humans is not considered a significant impact.

Increased visitor use of the Harding Icefield trail would occur within 0.5 mile from common summer use areas for mountain goats. Hikers using the trail to gain access to mountain ridges and alpine areas might displace goats from their summer ranges to other alpine areas. The number of goats displaced and the length of displacement are not expected to be significant because the number of hikers leaving the trail for the ridges is minimal. Research by park rangers has indicated that mountain goats use the entire ridge north of the Harding Icefield trail, and goats could move to other areas of the ridge within their summer range to avoid human contact.

Conclusion. This alternative would result in impacts to herbaceous vegetation, though they would not be significant because of the small area affected. Wildlife species such as black bear and moose would be seasonally displaced from the Exit Glacier area to surrounding habitats. Contact between wildlife and humans could occur, but would be minimized by the existing management measures.

Infrastructure Impacts

Analysis. This alternative will require the existing vault toilets to be pumped out possibly twice as often as the current schedule. Odor problems at the toilets would persist and probably worsen. The parking facilities, which are already over capacity, would become even more strained, and parking along the access road would increase. People walking along the access road would be at risk of being hit by cars. Dust problems from the existing road would increase with the increase in car traffic. Water pollution could result from increased numbers of vehicles on the road and parking area.

Conclusion. If no action is taken, the overcrowding of the facility would adversely affect the roadway, environmental quality and visitor safety. The current odor problems at the sanitary facilities would worsen due to the increase in usage.

Impacts on Park Management and Operations

Analysis. Under the no action alternative, some baseline increases in park staff would be required in order to provide adequate services to an increasing number of visitors. The following nine additional seasonal positions would be required at Exit Glacier:

- 1 winter seasonal park ranger (protection)
- 4 summer seasonal park rangers (interpretation)
- 1 summer seasonal park ranger (protection)
- 3 summer seasonal maintenance workers

The widening and paving of portions of the Exit Glacier road, and the replacement of a bridge, all of which are currently underway, would allow more oversize vehicles to be driven to Exit Glacier. There would be no parking area improvements (such as better definition of parking spaces or aisles to provide improved circulation); therefore, on peak days, some staff time would be required to direct the parking of vehicles in the parking area and to turn visitors away once the parking area was full. Some staff time would also be required at such times to issue notices to illegally parked vehicles. The increase in visitation also would require additional staff to provide interpretation of park resources. Increased winter use also would require the addition of a winter seasonal ranger to protect park resources and facilities.

Conclusion. Under this alternative, park staff at Exit Glacier would be increasingly involved with the logistics of managing increasing numbers of visitors, particularly on peak visitation days. Minimal increases in park staff would allow existing levels of visitor services to be maintained, but would not be adequate to provide improved visitor contact and interpretation services.

ALTERNATIVE B: MINIMAL DEVELOPMENT

Impacts on Visitor Experience and Scenic Resources

Analysis. This alternative would allow some visitation growth to the Exit Glacier area, but would restrict the number of vehicles during peak days. When the parking lot became full, cars would not be permitted access. As a result, some people would plan their trips at off-peak hours or days, and others would elect to take a shuttle. Some would probably choose not to visit the area. As a result, there would probably be fewer people present during the peak times of the day than in the no action alternative (and probably alternative C). If visitation is spread out, more days would be filled to capacity. In general, visitors would need to plan their visit more carefully. The experience could become more of a group encounter if visitors elected to take a shuttle bus. In comparison to the other alternatives, alternative B would better preserve the existing feeling of a natural place and, with fewer people present, offer a more private encounter with the glacier.

In comparison to alternative A, this alternative provides more parking and vault toilets, a more rustic and varied trail experience, and more opportunities for the disabled and those using wheeled equipment. If executed sensitively, trail improvements using local materials would have no significant impacts to scenic resources. Similarly, if the visitor contact station and bus parking are carefully sited, there would be no significant impacts to scenic resources.

Conclusion. With the addition of facilities and elimination of severe crowding at peak times, alternative B would have a positive impact on the visitor experience. It would have no significant impact to scenic resources.

Socioeconomic and Visitation Impacts

Analysis. Alternative B would have a modest positive impact on tourism and general economic activity in Seward due to improvements of visitor facilities and consequently of the quality of experience for tourists visiting the area. These are secondary effects associated with reducing congestion at NPS facilities. Forecast visitation ranges for Exit Glacier are given for three alternative scenarios: low-, moderate-, and high-growth, as shown in Table 3. The most plausible of the scenarios, in light of recent growth trends and because of the added attraction provided by the new Alaska Sea Life Center, is the high-growth forecast of visitation.

From a tourism standpoint, all of the Exit Glacier development alternatives, including alternative B, provide positive benefits inasmuch as they involve improvements to facilities and parking. Nonetheless, visitor experience might diminish for people in cars and RVs not permitted access, who elect not to use shuttle service.

There would be no significant adverse socioeconomic impacts associated with alternative B. Closing the parking lot when it is full might result in diminished visitor experience and consequent reduction in visitation to the area with modest adverse effects to the region's economy. Conversely, private shuttle service might be instituted, which would stimulate economic activity.

Conclusion. The improvements to NPS facilities under alternative B would have modest positive benefits for the Seward area economy and population. Impacts would be mostly secondary as the needed improvements are indirectly related to the general growth of tourism in the Seward area.

Access and Transportation Impacts

Analysis. The addition of the bus parking area and other modifications to parking space delineation would make up to ten more parking spaces available for visitor vehicles during peak periods and circulation in the parking lot would be improved.

The proposed gate and turn-around at the Resurrection River bridge would prohibit entry when the parking lot is full. With the circulation and bus parking improvements, it is anticipated that by 1998 only the Fourth of July week end would require parking area closure. By the year 2003 the number of days would increase to approximately ten, and by the year 2008 to approximately 25.[1] The road closure may result in traffic jams or parking in undesignated areas near the turn-around if visitors disregard the signs provided near the Seward Highway.

An elective transit shuttle service to the site, if developed, would allow more visitors access to the glacier when the parking lot is full. Bus spaces would provide parking/dropoff for such a shuttle.

Conclusion. Although the proposed changes to the parking lot would provide better circulation and a needed bus dropoff area, over time potential visitors would be turned away because of a lack of parking spaces. However, possible private shuttle development would allow access to these visitors. Traffic on Exit Glacier Road would be reduced by turning people away near the Seward Highway when parking is at capacity.

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[1] *The methodology used to determine days of overflow is as follows:*
1. A model was developed that distributed the daily trips over a 24 hour period, based on visitor and parking lot counts and discussions with park staff. Average car occupancy was based on current conditions. The percentage of persons arriving by bus was based on current conditions.
2. The threshold was established by determing the peak time period for visitation, based on the model described above and determining the percentage of vehicles present as a ratio of the total daily visitation.
3. The parking supply was divided by the ratio determined above to establish the daily visitation threshold that could be accommodated by the parking supply.
4. The daily visitation for the high growth scenario, as distributed based on current visitation patterns, was compared to the thresholds derived from step 3 above. The number of days that threshold was exceeded was then determined.

Natural Resource Impacts

Analysis. Vegetation — Impacts on vegetation would result from (1) the direct removal of approximately 0.6 acre of vegetation to construct the proposed developments, and (2) the effects of increased foot traffic on herbaceous ground cover along trails (compared to current conditions).

The type and approximate amount of vegetation that would be removed because of development includes:

- 0.25 acre of herbaceous vegetation associated with closed deciduous forest and black cottonwood open tall shrub to develop the river trail;

- 0.25 acre of closed deciduous forest to increase the capacity of the parking lot; and less than 0.1 acre of herbaceous vegetation and willow, cottonwood, and alder shrubs to develop a cooking shelter at the walk-in campground, install new toilets at the parking lot, relocate or build a new visitor contact station, and clear vegetation around the interpretive shelter to improve views to Exit Glacier. Clearing of the shrubs at the interpretive shelter might cause resprouting of shoots from the cut stumps. Successive removal would be required to maintain viewsheds.

Loss of 0.6 acre of vegetation would be a less-than-significant impact in relationship to the availability of similar vegetation types in the region. More than half of the 0.6 acre of vegetation to be removed is primarily understory herbaceous species. The shrub or forest canopy would remain to minimize the visual impact of removing vegetation. Any area that is disturbed by construction beyond the footprint of the facility would be revegetated with native species to minimize the impacts on vegetation.

Foot traffic on trails would result in the continued loss of herbaceous ground cover on the trails as described for alternative A. However, the number of visitors at Exit Glacier would be less than that for alternatives A and C. Therefore, the damage to vegetation associated with trail use might be less than that with the other alternatives. Management techniques to maintain trails and encourage visitors to stay on designated trails, as described in the “Alternatives” chapter, would help minimize the impacts on vegetation. Resource protection goals could be easier to achieve with fewer people creating the stress on the vegetation.

Analysis. Wildlife — Impacts on wildlife would include the continued seasonal displacement of animals from their summer habitats in the Exit Glacier area, the direct loss of 0.6 acre of habitat, and potential human and bear or moose contact. The factors causing the temporary displacement of wildlife, the number of vehicles on the park entrance road, and the visitor trail use would be somewhat less in the long term under this alternative than with the other alternatives. Therefore, the effect of park visitors on the displacement of animals might be less than under other alternatives. This alternative does, however, allow for some growth of visitation above current conditions, and temporary displacement of wildlife would continue.

Development of the 0.5-mile-long river trail would provide public access into a 40-acre area of bear and moose habitat that is not readily accessible under current conditions. However, bears and moose are already temporarily displaced from a portion of this area by vehicle traffic along the park entrance road and activity at the seasonal cabins and walk-in campground. The additional effect on wildlife from visitor use along the river trail is expected to be less than significant because of the availability of similar habitat in the region and for the reasons described under alternative A.

The potential for human and bear/moose contact would continue. This impact would be reduced by the bear and moose management practices described in the "Alternatives" chapter.

The loss of 0.6 acre of vegetation that provides habitat for associated wildlife species is less than significant because (1) a large amount of similar habitat exists in the region, and (2) the habitat loss would be located near existing disturbed areas such as the parking lot and walk-in campground where wildlife has already been displaced.

Conclusion. This alternative would result in slight impacts to vegetation, which would not be considered significant because of the small area affected. Wildlife species such as black bear and moose would be seasonally displaced from the Exit Glacier area to surrounding habitats. Contact between wildlife and humans could occur, but would be minimized by implementation of recommended management measures. Because visitation would be more managed with this alternative, it could have less impact to natural resources than alternatives A or C.

Infrastructure Impacts

Analysis. The proposed cooking shelter, bus dropoff and parking, glacier overlook, and relocation of the contact station would require only minor regrading. Extending the accessible trail to the glacier overlook with a new bridge would require some filling and possibly wing walls at the bridge to prevent path fill from entering the stream. Realignment of the upper trail would potentially require cutting into the rock face and building a guardrail on the downslope side. These improvements could be made without significant impacts to the surrounding environment.

Addition of new vault rest rooms near the parking area would require excavation for vaults and minor grading to provide access. The existing toilets have odor problems associated with gases released by anaerobic decomposition of the sewage contained in the vault. Installation of new vault toilets will not eliminate the problem. Possible solutions for the odor problem include chemical additives, increased pump out frequency, solar battery pack exhaust fans, and self closing toilet seats. Composting toilets are not an alternative because the temperature extremes the area experiences inhibit microbial activity necessary for composting wastes.

Commercially-available dust palliatives for the control of dust on the gravel road and parking lot can be spread using a spray truck. Frequency of treatment would depend on local conditions such as rainfall, humidity, traffic counts and the nature of the soils in the road and parking lots. During long dry periods spraying might be required on a daily basis. Dust palliatives would need to be sprayed per the manufacturer's recommendation in order to prevent pollution. Many of the commercially available dust controlling agents are petroleum-based and might not be environmentally acceptable.

The installation of a gate at the east end of the Resurrection River bridge to control traffic would require some minor cut and fill regrading and new signing. The proposed location is on Forest Service land and would require a use agreement with the Forest Service.

Limiting the number of visitors to the available parking capacity would reduce the effect that overcrowding has on the infrastructure. The vault toilets would not need to be pumped out quite as often. The elimination of roadside parking would reduce the danger of a pedestrian/car accident along the road. Fewer cars generally means fewer pollutants generated by cars, including dripping oil, dust, emissions, and noise.

Conclusion. Alternative B would improve the sanitary facility odor problem somewhat and would reduce parking lot pollutants. The roadside parking problem would be eliminated with the proposed traffic controls. The alternative would not have significant environmental impacts to the area once construction is complete.

Impacts on Park Management and Operations

Analysis. Under this alternative, the following positions would be required in addition to the positions listed under alternative A:

- 1 summer seasonal park ranger (protection)
- 2 summer seasonal park rangers (interpretation)
- 1 summer seasonal custodial and trail maintenance worker
- 1 summer seasonal bio-technician

Under this alternative, parking area improvements would provide additional parking for both private vehicles and buses; therefore, slightly less staff time would be required under this alternative than under alternative A to manage traffic and parking. The installation of a gate at the Resurrection River bridge would allow staff to close the area when the parking area was full; however, some staff time would be required to monitor the parking area and operate the gate. A slight increase in capacity of the parking area, as well as the probable expansion of the elective shuttle service, would allow more people to visit Exit Glacier under this alternative than do currently. The increase in visitation and higher visibility of the contact station also would require additional staff to provide interpretation of park resources and maintenance of visitor facilities.

Conclusion. Facilities improvements and increased staffing would allow park staff to provide improved visitor contact and interpretation services.

ALTERNATIVE C: MODERATE DEVELOPMENT

Impacts on Visitor Experience and Scenic Resources

Analysis. This alternative would allow growth in visitation to double, as is projected for the next fifteen years. The character of the arrival experience would become less rustic with the paved entry road and parking area. The enlarged parking area would be less intimate but the narrow lots and retained vegetation would help to keep the experience from being vehicle-dominated. After some years, most people would arrive via shuttle bus, and the encounter would be more social and possibly more interpretive.

The enlarged contact station and covered outdoor area could help park staff provide a more educational and interpretive experience, though for most visitors the interaction with the glacier would still be primary. The scale of the proposed visitor center is appropriate for the area. With careful siting the facility could be located so that it would not impact scenic resources.

Additional trails would provide less crowded and more varied walking opportunities than in alternative A. If the nature trail realignment were successful in attracting visitors to use it for the return experience, the feeling of crowding on the main trail would be reduced. The disabled would be able to reach the level of the outwash plain, though wheelchair passage onto the plain to approach the glacier may not be possible.

Conclusion. In this alternative the visitor experience would change from what it is now. The overall effect of alternative C would be a more populated, developed, interpretive and accessible experience on the edge of a natural area. Greater numbers of people would be allowed to experience the area without significantly impacting the natural qualities of the environment.

Socioeconomic and Visitation Impacts

Analysis. Alternative C would have a modest positive impact on tourism and general economic activity in the Seward area due to expansion of parking and traffic circulation facilities and consequent improvement in the quality of experience for tourists visiting the area. These are secondary effects that result from reducing congestion at NPS facilities. Provision for a shuttle system during peak times could cause some visitors to be inconvenienced by the necessity to park their private vehicles offsite and ride to the NPS facility.

Conclusion. The improvements to NPS facilities under alternative C would have modest positive benefits for the Seward area economy and population. Impacts would be mostly secondary as the needed improvements are indirectly related to the general growth of tourism in the Seward area.

Access and Transportation Impacts

Analysis. Provision of a bus dropoff area and parking revisions would improve circulation and add capacity to the parking area. Some of the parking is at the outside edge of what is considered an acceptable distance for the average pedestrian. However, the parking spaces closer to the facilities could be limited to a two hour period, thus requiring those who intend to hike the Harding Icefield Trail to park farther away. Closer spaces thus would not be filled by those who arrive early to take this hike. Enforcement of parking limitations (bus loading zones, short- and long-term parking restrictions) would be required.

However, the park improvements may result in a longer visitation time, thus causing a correspondingly higher demand for parking during the peak period. If the average length of stay at the Exit Glacier facilities increases to an hour and a half, then the parking demand would exceed capacity during the Fourth of July weekend in 1998, approximately 10 days in 2003 and approximately 30 days in 2008. This shows that even though the parking lot capacity would be increased by 50%, because of the increased length of visitation, the parking demand would exceed capacity to a similar extent as alternative B. If use of a shuttle service were made mandatory when parking demand exceeded capacity more than 20 days per year, then the mandatory shuttle would have to be instituted around year 2005.

The provision of a shuttle, mandatory during peak hours during the peak season, would allow access even when the parking is full and would reduce traffic on Exit Glacier Road. The shuttle could consist of Park Service owned vehicles, with the operations and maintenance contracted out to a vendor, or could rely on having the entire operation, including the provision of the buses, contracted out. Visitors to the glacier during the time period that the shuttle is mandatory would be directed to a satellite parking lot, preferably located near the Seward Highway. The shuttle system would pick up visitors from the satellite lot and from the harbor area in Seward (this would include train and cruise ship passengers) every ten to twenty minutes. Passengers could be charged a fee (approximately $4-$6 per round trip) to offset the costs of the shuttle. The shuttle buses would be allowed access at the park entrance. Other passes for overnight campers and disabled persons needing their own vehicles could be issued from the visitor center in Seward. Some visitors would be discouraged by a mandatory shuttle. However, interpretive commentary could be provided during the shuttle. More details on a shuttle system are provided in Appendix F.

Impacts of the gate and turnaround at the Resurrection River Bridge are similar to alternative B.

Conclusion. This alternative allows the greatest number of visitors to access the glacier. Restricting access to shuttle buses during peak periods would eliminate spill-over parking and reduce the number of vehicles on the Exit Glacier road. However, a mandatory shuttle service may discourage some visitors. Providing interpretive commentary during the shuttle would add to the educational experience of the trip.

Natural Resource Impacts and Mitigation

Analysis. Vegetation — Impacts on vegetation would result from (1) the direct removal of 2.25 acres of vegetation to construct the proposed developments, and (2) the effects of increased visitor use on herbaceous ground cover along trails (compared to current conditions).

The type and approximate amount of vegetation that would be removed because of development includes:

- 0.25 acre of herbaceous vegetation associated with closed deciduous forest and black cottonwood open tall shrub to develop the river trail;
- 1.9 acres of closed deciduous forest to increase the capacity of the parking lot; and
- 0.1 acre of herbaceous vegetation and willow, cottonwood, and alder shrubs to develop the facilities at the walk-in campground, parking lot, and ranger contact area; and vegetation cleared to improve views to Exit Glacier from the paved trail (as described in the "Alternatives" chapter).
- Loss of 2.25 acres of vegetation is a less-than-significant impact in relationship to the availability of similar vegetation types in the region. Any area that is disturbed by construction would be revegetated with native species to minimize the impacts on vegetation.

The loss of herbaceous ground cover associated with increased visitor use of trails would be similar to that described in alternative A. Measures described in the "Alternatives" chapter would be implemented to maintain trails and encourage park visitors to remain on established trails.

	Impacts on Visitor & Scenic Reso	ts on Park Management and Operations	Construction Costs*
Alternative A No Action	-quality of current expe would be diminished c crowding during summ -visitor contact station v inadequate -disabled visitors would -limited experience trai view of glacier outwas -trail degradation and r parking could impact s resources	uld be overburdened by sed visitation demands es in traffic and road work ut parking improvements require diversion of staff to vehicles on peak days ional seasonal staff positions be required	none
Alternative B Minimal Development	-would disperse visits d week by restricting veh times and result in less -some visits might be lo -by restricting visits, vis ciation of natural envi would be best maintai -more opportunities fo -more varied trail oppo and less crowding on t -no impact to scenic re	tion to alternative A staff another 5 seasonal positions be required g improvements and gate tion at Resurrection River lessen current and potential on of staff to direct vehicles; eeded to monitor parking lot ose gate	$810,000
Alternative C Moderate Development	-allows most growth of park experience would crowded -more interpretation av contact station and sh -visitor experience wou rustic with paved entr parking -some visitors might be venienced by shuttle b experience would be r oriented -most opportunities for	tion to the positions in tive B, another 8 seasonal angers and maintenance rs would be required. (Larger se in visitation would be ed than for alternative B, ould thus require more park retation and protection staff) g benefits similar to alterna-	$2,780,000 with concessioner-owned shuttle or $6,328,000 with NPS-owned shuttle

*Comparative cost analysis for the Exit Glacier alternatives can
No impacts to cultural resources anticipated for any of the alter

TABLE 4. IMPACT SUMMARY FOR EXIT GLACIER

	Impacts on Visitor Experience & Scenic Resources	Socioeconomic & Visitation Impacts	Access & Transportation Impacts	Natural Resource Impacts	Infrastructure Impacts	Impacts on Park Management and Operations	Construction Costs*
Alternative A No Action	-quality of current experience would be diminished due to overcrowding during summer season -visitor contact station would be inadequate -disabled visitors would still have -limited experience trail ends before view of glacier outwash plain -trail degradation and roadside parking could impact scenic resources	-overcrowding could have modest dampening effect on tourism, and thus minor adverse impacts on town's economy	-with increased tour bus and RV traffic, parking and traffic conflicts would increase -vehicle numbers would further exceed parking capacity -parking along access road would increase	-foot traffic impacts on ground cover due to increased use of designated and undesignated trails -displacement of wildlife, especially large mammals, from increase in visitors -potential wildlife confrontation with humans would continue	-vault toilets would need more frequent emptying; odor problems associated -potential for water pollution from increase in vehicles and runoff from parking, roads	-staff could be overburdened by increased visitation demands -increases in traffic and road work without parking improvements would require diversion of staff to direct vehicles on peak days -9 additional seasonal staff positions would be required	none
Alternative B Minimal Development	-would disperse visits during day & week by restricting vehicles at peak times and result in less crowding -some visits might be lost -by restricting visits, visitor appreciation of natural environment would be best maintained -more opportunities for disabled -more varied trail opportunities, and less crowding on trails -no impact to scenic resources	-modest positive impact on tourism and general economic activity	-parking would be at capacity more days of the week -circulation would improve with bus parking addition -parking area would be closed on approximately 25 days per year by the year 2008	-foot traffic impacts on ground cover due to increased use of designated and undesignated trails -direct removal of 0.6 acres of vegetation -displacement of wildlife, especially large mammals, from increase in visitors -potential wildlife confrontation with humans would continue -potential for fewest natural resource impacts of all alternatives	-odors associated with toilets could be reduced -new vault toilets would require excavation -new grading and paving for accessible trail -minor cut and fill for visitor contact station -upper trail may require cut to cross chasm -minor cut and fill to provide new parking and bus drop-off -minor cut and fill at east end of Resurrection bridge for gate	-in addition to alternative A staff needs, another 5 seasonal positions would be required -parking improvements and gate installation at Resurrection River would lessen current and potential diversion of staff to direct vehicles; staff needed to monitor parking lot and close gate	$810,000
Alternative C Moderate Development	-allows most growth of visitation, park experience would be more crowded -more interpretation available, at contact station and shuttle -visitor experience would be less rustic with paved entrance and parking -some visitors might be inconvenienced by shuttle bus; experience would be more group-oriented -most opportunities for disabled	-modest positive impact on tourism and general economic activity	-circulation would improve with bus parking addition -increased parking capacity may be adequate for 5 10 years -some of parking would be beyond acceptable pedestrian distance from facilities -park improvements could cause increased demand for parking	-foot traffic impacts on ground cover due to increased use of designated and undesignated trails (impacts not significant) -removal of 2.25 acres of vegetation for proposed development -displacement of wildlife, especially large mammals, from increase in visitors -potential wildlife confrontation with humans would continue	-all of alternative B impacts -no significant impacts are expected from the grading operations	-in addition to the positions in alternative B, another 8 seasonal park rangers and maintenance workers would be required. (Larger increase in visitation would be expected than for alternative B, and would thus require more park interpretation and protection staff) -parking benefits similar to alternative B.	$2,780,000 with concessioner-owned shuttle or $6,328,000 with NPS-owned shuttle

*Comparative cost analysis for the Exit Glacier alternatives can be found in appendix D.

No impacts to cultural resources anticipated for any of the alternatives. Any previously unknown resources uncovered during construction would require accessioning, cataloguing, and preservation activities, and increased curatorial space.

Analysis. Wildlife — Impacts on wildlife under this alternative would include the temporary displacement of black bears and moose during the summer visitor season; the potential displacement of mountain goats from isolated hikers seeking the higher alpine areas above the Harding Icefield trail; the loss of 2.25 acres of habitat; and the potential for human and bear/moose contact.

Although the amount of habitat removed would be greater with this alternative than alternatives A and B, the impacts on wildlife are expected to be less than significant. The amount of habitat is small compared to the available similar habitat in the region. In addition, the habitat would be removed in areas adjacent to the current high visitor use sites, minimizing the effect of this removal. Bear and moose management practices (as described in the "Alternatives" chapter) would reduce the potential for human and bear or moose contact. The effects of wildlife displacement, which would be minimal, would be the same as those described in alternative B.

Conclusion. Alternative C would result in slight impacts to vegetation, but they would not be considered significant because of the small area affected. Wildlife species such as black bear and moose would be seasonally displaced from the Exit Glacier area to surrounding habitats. Contact between wildlife and humans could occur, but would be minimized by implementation of recommended management measures.

Infrastructure Impacts and Mitigation

Analysis. The addition of six spaces for bus parking, a bus drop zone, and expansion of the parking area would require regrading in the area. Because it is generally flat, cutting and filling necessary to provide proper grades and drainage would be minor.

Paving the road would increase runoff and require roadside drainage improvements such as ditches and culverts to convey the runoff. Water quality features such as a biofiltration swale would be used to treat runoff from the parking and bus drop off area. Oil/water separators were considered for water quality enhancement but were eliminated due to the high initial cost, the higher maintenance required, and the fact that biofiltration generally does a better job of cleansing the storm water runoff.

Paving the road would require minor regrading to provide positive drainage. Any paved surfaces would require periodic maintenance to repair the asphalt damaged by the freeze-thaw cycle.

With the institution of the shuttle service, buses would replace the car traffic and would probably decrease the pollution loading in the area. No special water quality enhancements beyond those suggested for the bus drop off and parking lots would be required for the shuttle service.

Expansion of the contact station could have grading impacts to the surrounding area. To mitigate this possibility, the facility would be sited carefully.

Extension of the accessible trail to the outwash plain would require realignment and regrading to traverse a steep area before the outwash plain. The trail would require fill to be placed to create a series of switchbacks and landings to provide the 1-in-20 slopes necessary for universal access ramps.

Addition of new vault toilets near the parking area would require excavation for vaults and minor grading to provide access. The existing toilets have odor problems associated with gases released by anaerobic decomposition of the sewage contained in the vault. Installation of new vault toilets would not eliminate the problem. Possible solutions for the odor problem include chemical additives, increased pump out frequency, solar battery pack exhaust fans, and self closing toilet seats.

Expansion to 12 campsites in the existing campground could be done within the area of the existing camp facility. Expansion of the parking area to include three more spaces would require minor regrading. Two more toilets could be added in the area of the existing toilets with minor regrading for access and excavation for vaults.

The level of planning represented in this document is not sufficiently detailed to evaluate potential impacts of alternative power generation. Impacts from any proposed use of alternative power generation would be evaluated in the design phase.

Conclusion. Alternative C would provide the additional infrastructure in terms of extra sanitary facilities and expanded parking to allow greater use of the Exit Glacier frontcountry. The shuttle bus service during peak usage would help reduce the traffic loading on the access road, and reduce pollutants related to automobile traffic and parking. The alternative would not have significant environmental impacts to the area once construction is complete.

Impacts on Park Management and Operations

Analysis. Under this alternative, the following positions would be required in addition to the positions listed under alternative B:

- 2 summer seasonal park rangers (protection)
- 4 summer seasonal park rangers (interpretation)
- 2 summer seasonal maintenance workers

Under this alternative, parking area improvements would provide additional parking for both private vehicles and buses; therefore, slightly less staff time would be required under this alternative than under alternative A to manage traffic and parking. The installation of a gate at the Resurrection River bridge would allow the area to be closed during shuttle operation times; however, some staff time would be required to operate the gate. The increased capacity of the parking area, as well as the mandatory shuttle service operated during peak visitation times, would allow a substantially higher number of visitors to visit Exit Glacier on peak days under this alternative as compared to the no action alternative. The increase in visitation also would require additional staff to provide interpretation of park resources and maintenance of new and larger visitor facilities. The number of staff required for this alternative would be higher than for alternative B due to expanded facilities and to the higher visitation that would be expected under this alternative.

Conclusion. This alternative would allow higher visitation, and a proportionately higher staffing level would be required in order to provide approximately the same levels of visitor contact and interpretation services as alternative B.

CUMULATIVE IMPACTS AT EXIT GLACIER

Access and Transportation

A general rise in tourism in the Seward area, as discussed above, would generate a growth in visitation to Exit Glacier. Increased visitation would result in more traffic on the Exit Glacier Road. Secondary impacts to air quality, both due to increased emissions and particulates (dust on unpaved portions) would be a factor. However, restricting the growth of private vehicle access, as proposed in alternative B, would moderate these impacts. A mandatory shuttle system, as described in alternative C, would reduce the number of visitor vehicles traveling on Exit Glacier Road, and the secondary impacts associated with that traffic. The shuttle vehicle would also contribute impacts, however these would be fewer than those associated with the unrestricted access policy in the no action alternative.

The following potential mitigating measures could reduce the cumulative and secondary effects of traffic generated by implementation of the alternatives:

- Dust abatement treatment: The gravel road surface through Forest Service lands could be treated to minimize particulate release with the application of dust palliatives. Secondary effects from the runoff of such treatment would need to be considered.
- Less polluting transit options: The use of alternate fuel vehicles for a shuttle service would have less negative impact on air quality than a diesel powered transit service.
- Interpretive shuttle: By providing interpretive commentary during the shuttle ride, the shuttle can become part of the educational experience of the glacier visit and counteract some of the decline in visitor numbers that a mandatory shuttle system would be expected to cause.

Natural Resources

Other activities that would affect regional wildlife include displacement of black bears and moose from summer range due to outdoor recreation in Chugach National Forest. Home building along Resurrection River near the Alaska-Seward Highway would also result in the loss of vegetation and wildlife habitat. The loss of vegetation and seasonal displacement of wildlife from the proposed action would contribute to the regional impacts on vegetation and wildlife, but these impacts would be minor.

CONSULTATION AND COORDINATION

May 18, 1995

Ms. Victoria Taylor
U.S. Army Corps of Engineers
Anchorage District Office
P.O. Box 898 (CENPA-CO-R)
Anchorage, AK 99506-0898

SUBJECT: Kenai Fjords National Park Front Country Development Concept Plan - Request for Section 404 Guidance

Dear Ms. Taylor:

Jones & Stokes Associates is assisting the National Park Service in preparing a NEPA Environmental Assessment (EA) for the Front Country Development Concept Plan (DCP) at Kenai Fjords National Park, Seward, Alaska.

Pursuant to the National Park Service's guidelines for preparing NEPA EAs, the analysis includes a discussion of potential project impacts on wetlands. This letter will serve as record that the National Park Service is requesting guidance from the Corps as to whether Section 404 permitting will be required for the proposed actions. Key elements of the project and a brief summary of previous telephone conversations with the Corps about the project are included below for your reference.

Please send any responses to me at the address shown on this letterhead by June 2, 1995.

Key Elements of the Project

Part of the proposed action in the DCP includes the siting of a visitor center and other facilities in Seward. The National Park Service has identified 3 alternative sites to construct a visitor center, parking lot, and administrative building.

The alternative sites are located on existing lots near the waterfront (see attached figures). Existing uses for these lots include a gravel-covered parking lot (S-3), a ballfield (S-15), the current Kenai Fjords National Park Visitor Center (S-4), and other commercial

Jones & Stokes Associates, Inc.
2820 Northup Way, Suite 100 • Bellevue, WA 98004-1419 • Fax 206/822-1079 • 206/822-1077

uses (S-5). The elevations of the lots range from approximately 14 feet to 18 feet (datum: MLLW = 0 feet). The lots are located landward of the bike trail.

The potential sites for the visitor center are in areas that were reconstructed after the 1964 tsunami damaged the original waterfront of Seward.

The alternative project designs would not place fill on the existing shoreline of the waterfront or in the lagoon outlet channel. A small portion of a drainage ditch located south of the ballfield (S-15) would be channeled through a culvert at the proposed parking lot entrance in one of the alternatives (see attached figures). The culvert would be placed at the "upstream" end of the ditch that receives stormwater runoff from 4th Avenue.

The National Park Service will consult with the Corps during the final design stage of any selected action to determine the effects on potential regulatory waters.

Previous Telephone Consultation with the Corps

Telephone consultation with Hank Baij from the Anchorage District Office on December 6, 1993, and with you on February 25, 1995, provided initial guidance on how the Corps' coastal wetland policies may affect this project.

Mr. Baij informed Jones & Stokes Associates that fill below the 13.8-foot high tide line (datum: MLLW = 0 feet) may be subject to Section 404 regulations, and fill below the 9.5-foot mean high water mark may need to satisfy requirements of Section 10 of the Rivers and Harbors Act. Mr. Baij indicated, however, that if sites within the regulated coastal elevations were previously filled, the site could be grandfathered and would not require a permit. A letter describing the action and asking the Corps for confirmation would be appropriate.

In addition, you had described to me in our telephone conversation on February 25 that projects located landward of the bike trail typically are not subject to coastal permitting regulations.

Ms. Victoria Taylor
May 18, 1995
Page 3

Thank you for your attention to this request. Please call if you have any questions.

Sincerely,

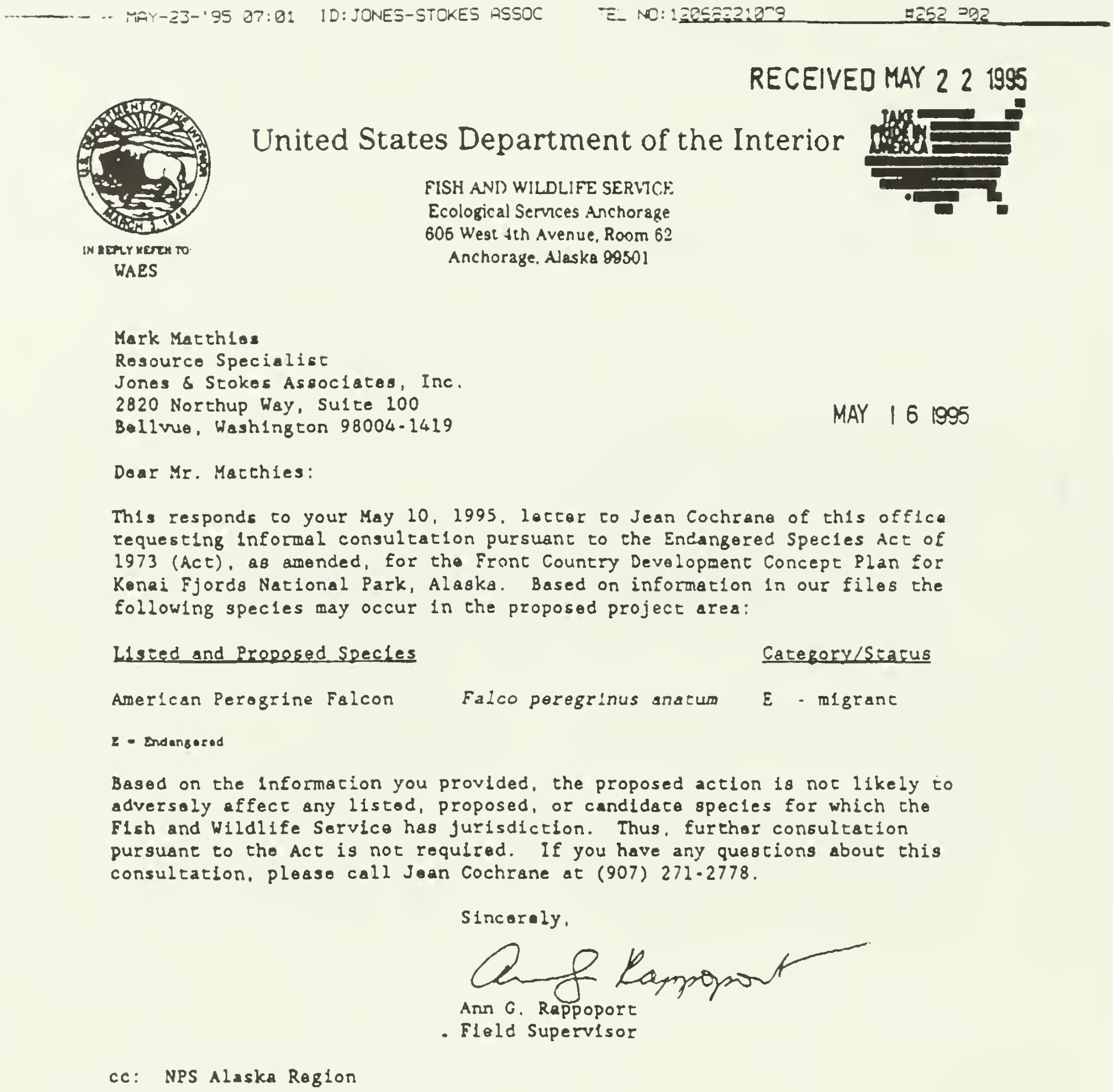
Mark Matthies
Wetland Biologist

:cg

Attachments

cc: Nancy Rottle, Jones & Jones
Nancy Baker, National Park Service - Western Service Center, Denver
Greg Jarvis, National Park Service - Western Service Center, Denver

JONES/KENAI EA(e)



MAY-23-'95 07:01 ID:JONES-STOKES ASSOC TEL NO:12068221079 #262 P02

RECEIVED MAY 2 2 1995

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services Anchorage
606 West 4th Avenue, Room 62
Anchorage, Alaska 99501

IN REPLY REFER TO:
WAES

Mark Matthies
Resource Specialist
Jones & Stokes Associates, Inc.
2820 Northup Way, Suite 100
Bellvue, Washington 98004-1419

MAY 1 6 1995

Dear Mr. Matthies:

This responds to your May 10, 1995, letter to Jean Cochrane of this office requesting informal consultation pursuant to the Endangered Species Act of 1973 (Act), as amended, for the Front Country Development Concept Plan for Kenai Fjords National Park, Alaska. Based on information in our files the following species may occur in the proposed project area:

Listed and Proposed Species		Category/Status
American Peregrine Falcon	*Falco peregrinus anatum*	E - migrant

E = Endangered

Based on the information you provided, the proposed action is not likely to adversely affect any listed, proposed, or candidate species for which the Fish and Wildlife Service has jurisdiction. Thus, further consultation pursuant to the Act is not required. If you have any questions about this consultation, please call Jean Cochrane at (907) 271-2778.

Sincerely,

Ann G. Rappoport

Ann G. Rappoport
Field Supervisor

cc: NPS Alaska Region

JONES & STOKES
RECEIVED

MAY 1 1 1995

Project ____

Proj. # ____

May 10, 1995

Ms. Jean Fitts Cochrane
U.S. Fish & Wildlife Service
Anchorage Field Office
Ecological Services
605 W. Fourth Avenue, Room G62
Anchorage, AK 99501

SUBJECT: Kenai Fjords National Park Front Country Development Concept Plan

Dear Ms. Cochrane:

Jones & Stokes Associates is assisting the National Park Service in preparing a National Environmental Policy Act Environmental Assessment (NEPA EA) for the Front Country Development Concept Plan (DCP) at Kenai Fjords National Park, Seward, Alaska. (See attached figure for the location of the proposed action.)

Pursuant to the National Park Service's guidelines for preparing NEPA EAs, the analysis includes a discussion of potential project impacts on threatened or endangered plants and wildlife species. This letter will serve as written record that the National Park Service is initiating informal consultation with your agency pursuant to the requirements of the Endangered Species Act and National Park Service management policies. The Alaska Natural Heritage Program has also been contacted for plants they consider as sensitive, threatened, or endangered.

Part of the proposed action in the DCP includes siting a visitor center and other facilities in Seward. The National Park Service has identified alternative sites to construct a visitor center, parking lot, and administrative building. The alternative sites are located on existing lots near the waterfront. Existing uses for these lots include paved parking areas, a ballfield, the current Kenai Fjords National Park visitor center, and other commercial buildings.

Additionally, the DCP includes alternatives for upgrading parking and interpretive facilities at the Exit Glacier parking lot and Exit Creek ranger station area at Kenai Fjords National Park.

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Ms. Jean Fitts Cochrane
May 10, 1995
Page 2

On September 23, 1993 I met with you in the Anchorage field office to request a current list of federally listed threatened or endangered species that might occur in the localities mentioned above. At that time you informed me there were no listings for the project site.

I am now requesting a current list of federally listed or candidate threatened or endangered species and designated critical habitats, if any, for these species in the localities mentioned above.

I appreciate your written response to this inquiry. Please call me if you have any questions.

Sincerely,

Mark Matthies
Resource Specialist

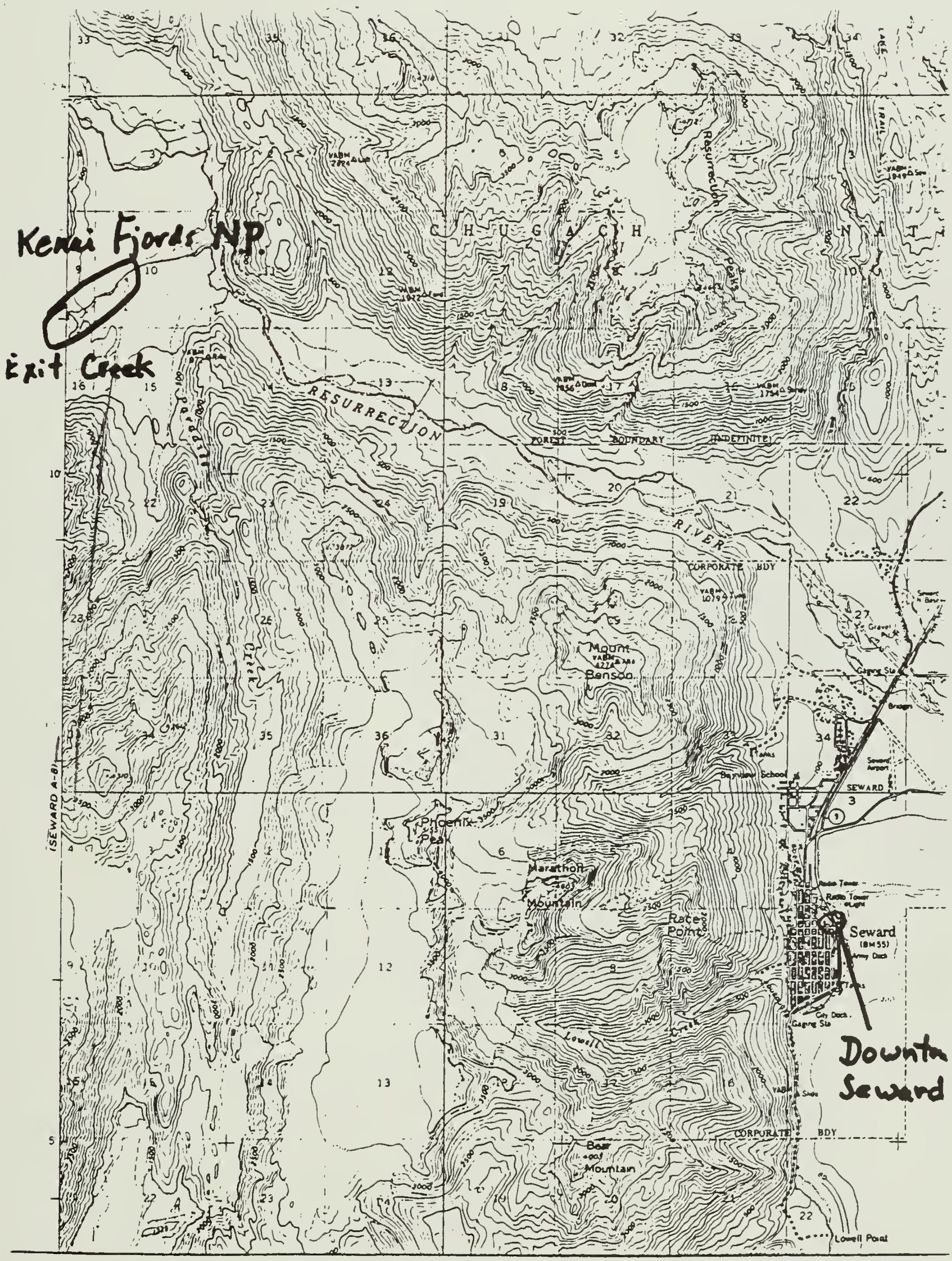
:lr

Attachment

cc: Nancy Rottle, Jones & Jones - Seattle, WA
Nancy Baker, National Park Service - Western Service Center, Denver, CO
Greg Jarvis, National Park Service - Western Service Center, Denver, CO

JONES/KENAI (e)

Jones & Stokes Associates, Inc.
2820 Northup Way, Suite 100 • Bellevue, WA 98004-1419 • Fax 206/822-1079 • 206/822-1077


Kenai Fjords N.P.
Exit Creek
Downtn Seward
C H U G A C H   N A T
Resurrection Peaks
RESURRECTION RIVER
FOREST BOUNDARY (INDEFINITE)
CORPORATE BDY
Mount Benson
Bayview School
Phoenix Peak
Marathon Mountain
Race Point
Seward
(BM 55)
Army Dock
City Dock
Gaging Sta
Radio Tower
Seward Airport
SEWARD
Lowell Creek
Bear Mountain
Lowell Point
SEWARD A-8
LAKE
TRAIL

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
P.O. BOX 898
ANCHORAGE, ALASKA 99506-0898

REPLY TO
ATTENTION OF:

JULY 03 1995

Regulatory Branch
Enforcement Section
9-950423

Mr. Mark Matthies
Jones and Stokes Associates, Incorporated
2820 Northup Way, Suite 100
Bellevue, Washington 98004-1419

Dear Mr. Matthies:

This is in response to your May 18, 1995, request and subsequent information provided on June 22, 1995, for a Department of Army (DA) jurisdictional determination on behalf of your client, United States Department of Interior, National Park Service, for their proposed construction of a new Kenai Fjords National Park Visitor Center. The three alternative sites (S-15, S-5, and S-3) are located within the S.W. 1/4 of section 3, T. 1 S., R. 1 W., Seward Meridian, in Seward, Alaska.

Your proposed project was reviewed pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for certain structures or work in or affecting navigable waters of the United States (U.S.), prior to conducting the work (33 U.S.C. 403). Section 404 of the Clean Water Act requires that a DA permit be obtained for excavation and the placement or discharge of dredged and/or fill material into waters of the U.S., including wetlands, prior to conducting the work (33 U.S.C. 1344).

For regulatory purposes, the Corps of Engineers defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Navigable waters of the U.S. are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or other waters identified as navigable by the Alaska District. Resurrection Bay is a navigable water of the U.S.

Based on our review of the information you furnished and available to our office indicating that all three of the alternative sites are existing fills above the High Tide Line of Resurrection Bay and since no fill material is proposed to be placed outside the existing footprint of the fills, we have determined that your proposed project areas are not under DA regulatory jurisdiction. Therefore, a DA permit is not required.

However, if you should decide to alter the method, scope, or location of your proposed activity, please contact this office for a determination of DA jurisdiction and, if applicable, the required DA authorization.

Nothing in this letter shall be construed as excusing you from compliance with other Federal, State, or local statutes, ordinances, or regulations that may affect this work. For informational purposes, a copy of this letter is being sent to the agencies and individuals on the enclosed list.

In an effort to determine the level of customer satisfaction with the processing of the above request, the Corps of Engineers, Regulatory Branch asks that you take a few moments to provide us with any constructive comments you feel are appropriate by filling out the enclosed questionnaire. If you have any other questions pertaining to this questionnaire, and you would like to discuss it by telephone, please contact this office at 1-907-753-2720.

We appreciate your cooperation with the Corps of Engineers' Regulatory Program. Please refer to file number 9-950423 in future correspondence or if you have any questions concerning this determination. You may contact this office at the above address, ATTN: CENPA-CO-R-E, or call Mr. Ryan H. Winn of my staff at 1-907-753-2720, or by FAX at 1-907-753-5567.

Sincerely,

John R Klutz Acting Chief
Enf. Sec.

for Richard Gutleber
Southern Unit Coordinator
Enforcement Section

APPENDIXES

APPENDIX A: ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT (ANILCA): PUBLIC LAW 96-487, SEC. 101, A,B,D

Section 101. (a). In order to preserve for the benefit, use, education, and inspiration of present and future generations certain lands and waters in the State of Alaska that contain nationally significant natural, scenic, historic, archeological, geological, scientific, wilderness, cultural, recreational, and wildlife values, the units described in the following titles are hereby established.

b). It is the intent of Congress in this Act to preserve unrivaled scenic and geological values associated with natural landscapes; to provide for the maintenance of sound populations of, and habitat for, wildlife species of inestimable value to the citizens of Alaska and the Nation, including those species dependent on vast relatively undeveloped areas; to preserve in their natural state extensive unaltered arctic tundra, boreal forest, and coastal rainforest ecosystems; to protect the resources related to subsistence needs; to protect and preserve wilderness resource values and related recreational opportunities including but not limited to hiking, canoeing, fishing, and sport hunting, within large arctic and subarctic wildlands and on freeflowing rivers; and to maintain opportunities for scientific research and undisturbed ecosystems.

c). This Act provides sufficient protection for the national interest in the scenic, natural, cultural and environmental values on the public lands in Alaska, and at the same time provides adequate opportunity for satisfaction of the economic and social needs of the State of Alaska and its people; accordingly, the designation and disposition of the public lands in Alaska pursuant to this Act are found to represent a proper balance between the reservation of national conservation system units and those public lands necessary and appropriate for more intensive use and disposition, and thus congress believes that the need for future legislation designating new conservation system units, new national conservation areas, or new national recreation areas, has been obviated thereby.

APPENDIX B: VISITATION REPORT, EXECUTIVE SUMMARY

KENAI FJORDS NATIONAL PARK VISITATION REPORT
EXECUTIVE SUMMARY

Prepared for

The National Park Service
under contract with Jones & Jones

by

Reed Hansen and Associates
(Subconsultant)
755 Winslow Way East, Suite 206
Bainbridge Island, WA 98110

May 1995

This report summarizes the analysis of trends in visitor use of Kenai Fjords National Park facilities. Kenai Fjords National Park is near Seward, Alaska on the Kenai Peninsula. The purpose of the study has been to assist planning for Park facilities as a part of requirements for the Kenai Fjords National Park Frontcountry Development Concept Plan Environmental Assessment. Much of the analysis focuses on trends in visitation to and through Seward. The dominant modes of visitor travel to southcentral Alaska are domestic air, cruise ship, and highway. Visitor markets include two distinct segments; Alaska residents and nonresidents of Alaska.

A July 1991 study (The McDowell Group, Alaska's Visitor Industry; an Economic Profile, State of Alaska Division of Tourism) summarizing the visitor industry in Alaska indicates that the southcentral region receives the largest number of Alaska's visitors. Anchorage, Alaska's largest city with nearly half the state's population, is in the southcentral region less than a half day's travel by highway north of Seward. Seward, a port city, is well-located to receive cruise ships. Many cruise ship passengers arrive at Seward and are bused to Anchorage to fly home, or vice versa.

While the major growth in Kenai Peninsula and Seward visitation is in the nonresident market segment, considerable visitation is also due to mostly vehicular trips for pleasure by Alaska residents. A July 1993 market study focusing on Seward(Fox Practical Marketing and Management, Alaska Sea Life Center: Resident/Nonresident Market Demand Study, SAAMS, Seward, Alaska). provides an analysis of resident as well as nonresident visitation. This study is based on recent surveys conducted in Anchorage, on the Kenai Peninsula, and in Matanuska-Susitna Borough north of Anchorage. The study finds that most Anchorage residents have been to the Kenai Peninsula and nearly all of them have visited Seward. Of these, about 60 % had visited in 1992 1993, averaging 4.3 trips per year. Sport fishing is the primary attraction, though two-thirds of visitor days involved activities other than fishing. A survey of Kenai Peninsula residents suggested that about 62 % had visited Seward in 1992 1993. Another survey of Matanuska-Susitna residents found that about 44 % had visited the Kenai Peninsula in 1992 1993.

Information from the July 1991 visitor industry study (McDowell Group, op. cit.), the July 1993 market study (Fox Practical Marketing Management, op. cit.), and Cruise Line Agencies of Alaska (interview) suggests that total visitors to Seward amounted to about 317,000 persons in 1993. More than three-fourths of visitors traveled to Seward by auto or RV and about 17 % by cruise ship. Ferry arrivals were only one %. Railroad and private air arrivals were together about 5 %.

The July 1993 market study (Fox Practical Marketing Management, op. cit.) indicates that the most significant recent factor to change Seward's visitor market is the general surge in cruise ship traffic. This surge is not confined to Seward; many ships depart Vancouver, BC, Canada, for southeastern Alaska destination cruises as well as the popular Glacier Bay cruises near southeastern ports. Seward is postured to capture a considerable share of the growth in cruise ship traffic to southcentral Alaska. This is because of limitations on permits to Glacier Bay due to environmental fragility and to the best access to Anchorage, which allows the cruise ship companies to most easily coordinate their air-cruise package tours.

A February 1993 study of Seward port facilities (Ogden Beeman & Associates, Cruise Ship Dock Report, Portland, Oregon) indicates that the cross-gulf cruise trade primarily offers 7-day cruises from Vancouver, B.C. to Seward, Whittier, or Anchorage. In 1993 the majority of cruise ship air-cruise package passengers moved through Seward. Whittier suffers from poor terminal facilities, difficult railroad connections, and no highway connection to Anchorage. Anchorage is a more difficult termination port due to extra distance and unfavorable tidal and other port considerations.

Interviews with representatives of Alaska Railroad and Cruise Line Agencies of Alaska as well as the July 1993 and February 1993 studies all suggest capacity constraints at Seward and elsewhere, especially docking facilities, might serve to restrain growth after 1993 unless port facilities are expanded. There have been several proposals for dock space expansion in Seward, since existing facilities are often utilized at capacity during summer peaks, especially at high demand periods centered around weekends.

According to Cruise Line Agencies of Alaska there were 61 cruise vessels docking at Seward in 1993. Vessel loading ranged from 115 to 1,500 passengers. Passenger load factors run about 80 - 90 % of capacity. The largest ships were those operated by Princess and Holland America-Westours. Total arriving passengers for 1993 were estimated to be 53,285. In 1994 91 vessels called at Seward and 120 vessel calls in 1995 are projected. It is considered possible that the number of vessel calls will increase to 150 in 1996, indicating the growing importance of the cruise ship market for Seward.

Because Seward is currently a turn-around point for most cruise vessels, the visitor economy of the area does not derive substantial benefit from cruise ship traffic. When vessels call at Seward their passengers disembark, are bused to Anchorage, and leave by air. Other passengers arrive by bus from Anchorage to begin their cruise from Seward. However, only a small share of these passengers visit Seward during the stop-over. Cruise ship crew members also visit Seward for short periods. The attractions of the Alaska Sea Life Center and a larger park visitor center could result in more cruise vessels using Seward as a port-of-call rather than a port-of-origin and -destination. The potential for interesting side trips to the Alaska Sea Life Center, park facilities, and other attractions might induce some of the cruise ship vessels turning around in Seward to delay enough to enable disembarking and /or embarking passengers to take such side trips. Reorienting the cruise ship traffic to allow for longer in-port stays would result in increased local visitor spending and expanded economic activity. Visitation to the park visitor center in Seward would likely be increased substantially as a consequence of longer port stays by cruise ships.

Recreational visits to the Kenai Fjords National Park are available from the National Park Service monthly public use reports. These are given for two sites: the visitor center in Seward; and Exit Glacier a few miles north of Seward just off the highway to Anchorage. Data on recreational visits for 1990 1993 (through October) were obtained by month from the monthly use reports. Raw tabulations obtained from the Park were used to develop recreational visitor counts for 1994. The 1994 visitor counts are shown in Table 5. These monthly visitation patterns are typical of recent years. Total peak month visits occur in July, followed by those in June or August. May and September visits reflect startup and completion of summer activities, respectively. Most visits are over by the end of October. There were dramatic increases in visits in 1991 over 1990 and in 1993 over 1992. In 1993 visits to Exit Glacier were about double those for the visitor center, compared to the previous years, when visitor shares at the two facilities were not as disproportionate. This may be due to problems with under-counting at the Exit Glacier site, because of an improperly operating traffic counter prior to May 1993, which resulted in an apparently enormous surge in the number of visitors over 1992 at Exit Glacier.

In 1994 visitation to the Park facilities increased overall, compared to the previous year, following the historical trend. However, the visitor count at Exit Glacier was 18.9 % higher than in 1993, while it was lower by 14.3 % at the visitor center. Visitation at the visitor center was especially low in June 1994 compared to the previous year, 13,950 persons versus 24,282 persons, respectively. It is also worth mentioning that paid camper nights at the City's campgrounds were unchanged for June 1994 compared to the same month in the previous year. Total 1994 camper nights were only slightly lower than in 1993.

Conversely, visitor contacts at the Chamber of Commerce were much higher in May/June 1994, compared to the same period in the previous year (11,108 versus 6,969). In 1994 the Chamber of Commerce established an information center at the small boat harbor, just steps away from the visitor center, which undoubtedly accounts for much of the increase in contacts. This may also provide a partial explanation for the reduction in visitation at the Park Service facility.

TABLE 5. VISITS TO EXIT GLACIER AND VISITOR CENTER. 1994 VISITOR COUNTS

Month	Exit Glacier	Visitor Center
January	124	194
February	45	136
March	107	337
April	763	637
May	9,618	4,442
June	32,869	13,950
July	47,193	17,284
August	36,385	10,157
September	15,954	5,222
October	2,813	705
November	560	110
December	293	72
Total Annual	146,724	53,246

Source: Raw tabulations for NPS Monthly Use Reports, 1994

The growth in Kenai Fjords National Park visitation, Seward campground use, and cruise vessel turnarounds is likely to persist in the near future. There are a few qualifications, however. Growth is never uniform. The explosive growth of the recent past could be slowed by any of a number of factors. Glacier Bay permit increases may draw cruise ships to that area, diverting some from southcentral terminals. A road connecting Whittier to Anchorage, which has been considered recently, or dock repair at Whittier could shift some ship and sailing condition advantages. over Seward.

The NPS visitation data for the two major facilities provide the basis for conducting forecasts of annual, peak month, and peak day visitation in future years. Forecast visitation ranges indicating low-, moderate-, and high-growth scenarios are developed to estimate facility requirements over the period covered by the Kenai Fjords National Park Frontcountry DCP/EA. Three scenarios are considered for 5-10- and 15-year projections. The high- and moderate-growth scenarios anticipate rapid growth initially. The low-growth scenario suggests a one-time reduction of visitors from 1993 levels (10% decrease), followed by a modest rate of increase through the study horizon.

The low-growth scenario presumes a 2% annual rate of increase for both resident and nonresident visitors. This suggests that Kenai Fjords visitation will follow the trend for 1990 1993 Anchorage population growth and that nonresident visits will slow dramatically compared to recent experience.

For the moderate-growth case, the 1994 projection is based on a 13.3% increase above the 1993 base-year figure (this is the average annual rate of growth in visits to Park Service facilities between 1987 and 1993). Thereafter, the projections are based on a 17% resident visitor share, which is the share estimated by NPS surveys, growing at a 2% rate after the initial surge. The rest (83%) are nonresident visitors, which are expected to grow at 5.5% per year through 1998 and 3.5% annually thereafter.

The high-growth scenario is similar to the moderate-growth scenario except for cruise ship passengers, for whom visitation is estimated at 10% of one-way cruise passenger arrivals initially, rising to 17.5% by 1998. Cruise ship passenger arrivals are expected to grow at 4% per year. One half of cruise ship passengers who visit NPS facilities are considered likely to visit Exit Glacier. (Recent cruise ship bookings would suggest that visitation by passengers to the Alaska Sea Life Center as well as park facilities could be about 10% higher than projected for the high-growth scenario.)

The projections of total visitors to the visitor center and Exit Glacier, as well as actual counts for 1993 (the base-year) and 1994, are presented in Tables 6 and 7.

TABLE 6. ANNUAL VISITATION PROJECTIONS FOR THE VISITOR CENTER

Year		Low-Growth Scenario	Moderate-Growth Scenario	High-Growth Scenario
1993	(Base-year)	62,116	62,116	62,116
1994	(Projected) (Annual)	55,904 53,246	70,377 53,246	70,377 53,246
1998	(5-year)	60,513	85,314	92,024
2003	(10-year)	66,811	100,243	108,705
2008	(15-year)	73,765	117,862	128,510

Source: Kenai Fjords National Park Visitation Report, July 1994

The 1994 visitation data (shown in Table 5 above) provide validation of the visitor projections used in this study. Using alternative growth scenarios is shown to be appropriate given the uncertainties of forecasting park visitation. The number of visitors projected for the visitor center in 1994 were higher at 55,904 than the actual count of 53,246. The number of visitors at Exit Glacier actually exceeded the forecast figures (146,724 actual versus 139,871 projected). Thus, the forecast visitation ranges for Exit Glacier and the visitor center under the alternative growth scenarios appear to be sufficiently broad to encompass future patterns at Kenai Fjords National Park.

TABLE 7. ANNUAL VISITATION PROJECTIONS FOR EXIT GLACIER

Year		Low-Growth Scenario	Moderate-Growth Scenario	High-Growth Scenario
1993	(Base-year)	123,453	123,453	123,453
1994	(Projected) (Annual)	111,108 146,724	139,871 146,724	139,871 146,724
1998	(5-year)	120,267	169,557	169,784
2003	(10-year)	132,784	199,229	199,744
2008	(15-year)	146,604	234,245	235,157

Source: Kenai Fjords National Park Visitation Report, July 1994

Because of an expected increase in visitors to the region associated with the Alaska Sea Life Center, the moderate-growth scenario is used to project visitation at the visitor center for all of the alternatives considered. With development of the Alaska Sea Life Center and the possibility that substantial numbers of cruise ship passengers will remain for longer periods in Seward, it is appropriate to plan for visitation growth envisioned by the moderate-growth scenario. The high-growth scenario is applied in regard to visitation at Exit Glacier for all of the alternatives considered in the Development Concept Plan. Recent high visitation growth rates at Exit Glacier along with the possibility of additional visitation by cruise ship passengers provide a rationale for using the High-Growth Scenario visitation projections.

Daily peak projections were used for planning and evaluating capacity at the visitor center and Exit Glacier including parking facilities. The daily peak is based on 5% of the monthly peak, with the latter estimated at 30.1% and 33.1% of total visitors at the visitor center and Exit Glacier, respectively, based on experience in 1993. Visitors to the campground are determined based on daily peak for July 1993 (or 22.3 campers) which, in turn, are projected at the rate of growth for other visitors. Projected daily peaks for the visitor center, Exit Glacier, and campground are shown in Table 8.

The visitor center was sized to accommodate visitors during most of the year, using the projected peak day visitation. Sizing the facility for peak day, however, would yield a facility that would be under-used the remainder of the year. Therefore, to predict the size of building needed on most summer days the peak day visitation was factored by 80% (a standard planning methodology) to arrive at a high-use, or design day, of 1,420 people per day at the visitor center. Based upon visitation use patterns during the day and an assumed stay of one hour in the expanded facility, an average peak hour on a design day was calculated. Using this methodology, it was estimated that 400 people would be in the facility at one time on a design day by the year 2008. A minimum of 25 square feet per person is generally needed for visitor centers; this number times 400 people indicates a need for a facility of at least 10,000 square feet. Because most of the months of the year receive only half (or less) the number of visitors in June, July or August, it was felt that the facility should be sized conservatively, at 9,500 square feet. The park would manage the flow of visitors at the peak times through special programs, use of outdoor facilities, and extra staffing.

TABLE 8. KENAI FJORDS NATIONAL PARK DAILY PEAK VISITATION PROJECTIONS

Growth Scenario/year	Visitor Center	Exit Glacier	Campground
Low-Growth Scenario			
1998 (5-year)	911	1,990	22
2003 (10-year)	1,006	2,198	24
2008 (15-year)	1.110	2,246	27
Moderate-Growth Scenario			
1998 (5-year)	1,283	2,806	31
2003 (10-year)	1,509	3,303	36
2008 (15-year)	1,774	3,877	42
High-Growth Scenario			
1998 (5-year)	1,385	2,810	31
2003 (10-year)	1,636	3,306	36
2008 (15-year)	1,934	3,892	42

Source: Kenai Fjords National Park Visitation Report, July 1994.

Projections for Exit Glacier were used to anticipate the size of a parking area that would be needed to accommodate most vehicles during the summer season. The same methodology as described above for the visitor center was employed. A figure of 80% of the peak day was used to generate a high-use, or design day, and visitation patterns were used to calculate the peak number of vehicles (at current conditions of 2.1 people per vehicle) in the parking lot at one time on a design day. Visitors expected to arrive by bus were factored separately to project the number of bus parking spaces needed. A preliminary alternative was developed which accommodated the peak number of vehicles on a design day; however, the size of the parking lot was unacceptable to many public respondents, and this alternative was eliminated from further consideration. The peak number of vehicles on a design day was also used to predict the number of days the parking area would close in Exit Glacier alternative B, and for alternative C, to project the number of years before a mandatory shuttle system might be required. These results and the methodology for determining them can be found in the "Environmental Consequences" section.

APPENDIX C: ANILCA SECTION 810 - SUBSISTENCE STATEMENT (A) SUMMARY FINDING

BACKGROUND

Subsistence uses, as defined by ANILCA, Section 803, means "the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade." Subsistence activities include hunting, fishing, trapping, and collecting berries, edible plans, and wood or other materials.

Section 201 (5) of ANILCA does not authorize subsistence use within Kenai National Park.

I. INTRODUCTION

This section was prepared to comply with Title VIII, Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA). It summarizes the evaluations of potential restrictions to subsistence activities which could result from alternatives that address the expansion of visitor facilities within Kenai Fjords National Park (KEFJ). The KEFJ Seward/Exist Glacier Draft Development Concept Plan/Environmental Impact Statement describes a range of alternatives for consideration.

II. THE EVALUATION PROCESS

Section 810(a) of ANILCA states:

> "In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands . . . the head of the federal agency . . . over such lands . . . shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other use, occupancy or disposition of such lands which would significantly restrict subsistence uses shall be effected until the head of such Federal agency -
>
> (1) gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to section 805;
>
> (2) gives notice of, and holds, a hearing in the vicinity of the area involved; and

> (3) determines that (A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions."

ANILCA created new units and additions to existing units of the national park system in Alaska. Kenai Fjords National Park was created by ANILCA Section 201 (5) for the purposes of maintaining unimpaired the scenic and environmental integrity of the Harding Icefield, its outflowing glaciers, and coastal fjords and islands in their natural state; and to protect seals, sea lions, other marine mammals, and marine and other birds and to maintain their hauling and breeding areas in their natural state, free of human activity which is disruptive to their natural processes.

Section 201 (5) of ANILCA does not authorize subsistence use within Kenai Fjords National Park.

The potential for significant restriction must be evaluated for the proposed action's effect upon ". . . subsistence uses and needs, the availability of other lands for the purposes sought to be achieved and other alternatives which would reduce or eliminate the use."

III. PROPOSED ACTION ON FEDERAL LANDS

Within the park boundary at Exist Glacier, the proposed action would authorize construction of visitor contact/campground facilities, and trail system/access road improvements.

In addition to the proposed action, there is a no-action alternative under which park management would continue pursuant to existing laws and regulations. A full discussion of alternatives, development scenarios, and anticipated effects can be found in the DCP/EIS.

IV. AFFECTED ENVIRONMENT

A summary of the affect environment pertinent to subsistence use is presented here. For a comprehensive description, see the "Affected Environment" chapter of the draft DCP/EIS. The following documents contain additional descriptions of the environment of Kenai Fjords National Park:

> Kenai Fjords National Park, Final General Management Plan, Alaska Regional Office, National Park Service, 1986.
>
> Kenai Fjords National Park, Final Environmental Impact Statement, Wilderness Recommendation, Alaska Panning Group, 1988.

Lands within Kenai Fjords National Park are closed to subsistence uses. ANILCA, however, authorized subsistence uses on adjacent federal public lands in Chugach National Forest and the Kenai National Wildlife Refuge. Regional subsistence activities that occur outside the park include hunting, fishing, trapping, berry picking and plant gathering. Black bear, moose, fish, furbearers, small mammals, waterfowl, berries, other edible plants, and wood constitute the major subsistence resources used by residents of Units 7 and 15.

V. SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impact on existing subsistence activities, three evaluation criteria were analyzed relative to existing subsistence resources which could be impacted.

The evaluation criteria are:

- the potential to reduce important subsistence fish and wildlife populations by (a) reductions in numbers; (b) redistribution of subsistence resources; or (c) habitat losses;
- what affect the action might have on subsistence fisherman or hunter access;
- the potential for the action to increase fisherman or hunter competition for subsistence resources.

1) The potential to reduce populations:

Exit Glacier

1. No Action. Would not reduce populations

2. Minimal Development. Wildlife and habitats are subjected to potential impacts and disturbances caused by new construction. However, the potential impacts would be temporary in nature and not of a magnitude to significantly reduce wildlife populations or their habitats.

3. Moderate Development. Wildlife and habitats are subjected to potential impacts and disturbances caused by new construction and substantial increase in visitation. However the potential impacts would not be of a magnitude to significantly reduce wildlife populations or their habitats.

2) Restriction of Access:

All rights of access for subsistence harvest on NPS lands are granted by section 811 of ANILCA. None of the alternatives under consideration would in any way affect the access to resources by local subsistence users. No restrictions on access to subsistence users to resources are proposed within any of the alternatives.

3) Increase in Competition:

None of the alternatives under consideration would in any way produce any significant increase in competition for subsistence resources. Continued implementation of the ANILCA provisions should mitigate any increased competition from resources users other than subsistence users.

AVAILABILITY OF OTHER LANDS

The availability of other lands outside and within the park have been considered in the proposed actions. The proposed actions are consistent with NPS mandates. Because the proposed actions occur on federal lands which are not available for subsistence use, the proposed actions do not affect the availability of federal land for subsistence use. No major impact on subsistence uses is expected under the proposed actions.

ALTERNATIVES CONSIDERED

The evaluation has described and analyzed the alternatives of this draft DCP/EA with emphasis on the proposed actions.

FINDINGS

This analysis concludes that the proposed actions would not result in significant restriction of subsistence uses.

APPENDIX D: COMPARATIVE COST ANALYSIS OF THE ALTERNATIVES

TABLE 9. VISITOR CENTER AND ADMINISTRATIONBUILDING DEVELOPMENT COSTS (IN THOUSANDS OF DOLLARS)

Development Item	Alternative B			Alternative C			Alternative D			Alternative E		
	Gross Construction	Construction Planning	Total	Gross Construction	Construction Planning	Total	Gross Construction	Construction Planning	Total	Gross Construcction	Construction Planning	Total
Expand Existing Visitor Center												
–Utilities and grading	131	33	164	131	33	164						
–Parking and site improvements	25	6	31	25	6	31						
–Remodel building	3,476	869	4,354	3,476	869	4,345						
–Furnishings	33	8	41	33	8	41						
–Exhibits	590	147	737	590	147	737						
SUBTOTAL	4,255	1,063	5,318	4,255	1,063	5,318						
New Building												
–Demolition	21	5	26									
–Utilities and grading	132	33	165	114	28	142	181	45	226	300	75	375
–Parking and site improvements	131	33	164	207	52	259	206	52	258	236	59	295
–Building	2,240	560	2,800	4,510	1,127	6,637	8,283	2,071	10,354	8,283	2,071	10,354
–Furnishings	195	49	244	390	97	487	390	97	487	390	97	487
–Exhibits							590	147	737	590	147	737
TOTAL	6,974	1,743	8,717	9,476	2,367	11,843	9,650	2,412	12,062	9,799	2,449	12,248

NOTES: In alternatives B and C the visitor center would be constructed after completion of the administration building. Phasing is needed in order to retain the existing facility for park operations during construction of the new administration building.

This analysis does not include cost of purchasing or leasing facility sites.

This comparative cost analysis was prepared from interpretation of the planning level drawings at a scale of approximately 1"=500'. The NPS Class "C' Cost Estimating Guide was used for most pricing. Prices were verified with Means Estimating Guide and conversations with Alaska contractors. Selected costs were provided by Alaska contractors.

Cost figures are in 1995 dollars.

There are no costs associated with Alternative A, the No Action alternative.

EXIT GLACIER

BUILDING DEVELOPMENT COSTS (IN THOUSANDS OF DOLLARS)

Development Item	Alternative B			Alternative C		
	Gross Construction	Construction Planning	Total	Gross Construction	Construction Planning	Total
Trail Improvements	81	20	101	115	29	144
Parking Improvements	16	4	20	523	131	654
Roadway Improvements	21	5	26	395	97	492
Toilets at main parking area	313	78	391	470	118	588
Expand Walk-in Campground				3	1	4
Toilets at Walk-n Campground				92	23	115
Cook Shelter	20	5		20	5	25
Contact Station	141	35	176	432	108	540
Contact Station Furnishings	20	5	25	59	15	74
Contact Station Exhibits	37	9	46	115	29	144
SUBTOTAL	649	161	810	2,224	556	2,780
Shuttle buses*				1,792	0	1,792
Shuttle Bus Maintenance Facility*				1,405	351	1,756
TOTAL* with Shuttle Ownership				5,421	907	6,328

NOTES: These costs would be incurred if the National Park Service elects to purchase and maintain their own bus fleet. Most costs would be offset by charging a rider fee. Capital shuttle costs would be phased, as the shuttle would be implemented after other improvements are complete. See Shuttle System Analysis, Appendix F, and Staffing and Operations costs.

This analysis does not include cost of purchasing or leasing facility sites.

This comparative cost analysis was prepared from interpretation of the planning level drawings at a scale of approximately 1"=500'. The NPS Class "C' Cost Estimating Guide was used for most pricing. Prices were verified with Means Estimating Guide and conversations with Alaska contractors. Selected costs were provided by Alaska contractors.

Cost figures are in 1995 dollars.

There are no costs associated with Alternative A, the No Action alternative.

STAFFING AND OPERATIONS COSTS

Visitor Center

Alternative A. Staffing needs for alternative A would include two summer seasonal interpreters, one permanent bio-technician, one permanent maintenance worker, and one permanent deckhand for a cost of $120,000 above the current annual operating costs.

Alternative B. Staffing needs for alternative B would include those for alternative A plus one permanent maintenance worker, two summer seasonal interpreters, and one summer seasonal custodial worker for a cost of $200,000 above the current annual operating costs.

Alternative C. Staffing needs for alternative C would be the same as for alternative B.

Alternative D. Staffing needs for alternative D would be the same as for alternative B.

Alternative E. Staffing needs for alternative E would be the same as for alternative B.

Exit Glacier

Alternative A. Staffing needs for alternative A include one winter seasonal protection ranger, four summer seasonal interpreters, one summer seasonal protection ranger, and three summer seasonal maintenance workers for a cost of $148,000 above the current annual operating costs.

Alternative B. Staffing needs for alternative B would include those for alternative A plus one summer seasonal protection ranger, two summer seasonal interpreters, one summer seasonal custodial worker, and one summer seasonal bio-technician for a cost of $216,000 above the current annual operating costs.

Alternative C. Staffing needs for alternative C would include those for alternative B, plus two summer seasonal park protection rangers, four summer seasonal interpreters, and two summer seasonal maintenance workers for a cost of $328,000 above the current annual operating costs.

Shuttle Operations Costs

Shuttle operations costs for alternative C would total an estimated $342,000 annually. Amortized capital costs would total an estimated $425,000 annually, amortized over the 12-year estimated vehicle life of the bus fleet. Capital costs include the bus fleet and maintenance facility. Combined capital and operations costs would total $767,000 annually. If a $5 fee is charged per round trip, the total fees collected are estimated to be $704,000 annually, resulting in a net subsidy of $62,000 per year.[1]

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[1] *If a concessioner owns, maintains, and operates the vehicles, the operations and maintenance costs would include the cost of the bus fleet and facilities, at $513,000 annually. Because the vendor would be likely to use an existing fleet and maintenance facility, actual costs, including capital outlay, would be less with vendor ownership than with National Park Service ownership. A $5 charge per passenger is estimated to produce an annual revenue surplus of $191,000.*

APPENDIX E: ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT (ANILCA) SECTION 1306

UNDER PUBLIC LAW 96-487, DECEMBER 2, 1980

Several Native-owned sites were considered as potential visitor center sites in and near Seward. These sites were evaluated to comply with ANILCA Section 1306, which states:

> In conformity with the conservation and management plans prepared for each unit and the purposes of assuring the preservation, protection, and proper management of any conservation system unit, the Secretary may establish sites and visitor facilities —
>
> > (1) within the unit, if compatible with the purposes for which the unit is established, expanded, or designated by this Act, and the other provisions of this Act, or
> >
> > (2) outside the boundaries of, and in the vicinity of, the unit.
>
> To the extent practicable and desirable, the Secretary shall attempt to locate such sites and facilities on Native lands in the vicinity of the unit.

None of the Native-owned sites were considered satisfactory for the location of the visitor center for reasons discussed in the "Alternatives" section, "Sites Considered But Rejected".

APPENDIX F: SHUTTLE SYSTEM ANALYSIS

Exit Glacier development alternative C requires mandatory shuttle during the peak season. In order to access the fleet requirements and costs of such a shuttle, a hypothetical shuttle system was defined and analyzed. Based on the shuttle system options available, the following assumptions were used.

ROUTE

The service analyzed would run from a visitor center in the vicinity of the boat harbor to a shuttle lot location on Seward Highway (site 11), continuing to Exit Glacier and returning by the same route. The bus would dwell from one to five minutes at each stop to load and unload passengers.

Although this was the route assumed in the analysis, other route options include a connection with Alaska Sea Life Center and a shuttle lot located closer to the glacier visitor area, possibly on Forest Service land near Exit Glacier Road.

SERVICE TIMES AND HEADWAYS

The service would operate from 9:00 A.M. to 6:00 P.M., with a few follow-up runs leaving Exit Glacier after 6:00 to pick up stragglers. The operation would run seven days a week during the three month season. Three policy headway options were analyzed: 10, 15 and 20 minutes. A policy headway is the maximum time between buses at a stop. During peak hours when ridership is higher, buses would leave when they are full, which may be more frequently than the policy headway.

RIDERSHIP

Ridership projections were based on the Exit Glacier high-growth design day visitation projections for the year 2003. It was assumed that:

- 27% of the visitors would be served by other tour bus operators and would not ride this shuttle.
- all visitors arriving between 9:00 A.M. and 5:30 P.M. would be required to ride the shuttle
- private vehicles would be restricted from road use.
- even with the restriction of private vehicles, approximately 10% would be permitted to use the road for reasons such as a disability, overnight camping permit, etc.

FLEET

Standard 43-passenger diesel buses were assumed.

FINDINGS

The system would carry approximately 1,470 round trip passengers during a design day. There would be approximately 140,900 round trip passengers per summer season. The trip from the visitor center to the shuttle lot would take about 12 minutes, including loading time. A bus would load and unload passengers for about five minutes, then proceed to Exit Glacier. A one-way trip would average 32 minutes, based on the assumption that Exit Glacier Road conditions are maintained to allow an average speed of 45 mph.

Two different scenarios for the system operation were analyzed. In one, the National Park Service would purchase the buses, but operations would be provided by an outside contractor. The National Park Service would also develop a maintenance and storage building for the fleet. In the other scenario, the National Park Service would contract for both the equipment and the operations of a shuttle service. The following table summarizes the fleet requirements and costs for a shuttle system under both scenarios based on different policy headways. A fleet of eight buses (including one spare) would be required regardless of the policy headway, to accommodate the peak hour demand.

TABLE 10. PROJECTED PASSENGER SHUTTLE COSTS

	POLICY HEADWAYS (IN MINUTES)		
	10 MINUTES	15 MINUTES	20 MINUTES
PARK SERVICE OWNS FLEET: CONCESSIONER OPERATES AND MAINTAINS			
Total cost per passenger (round trip)	$5.84	$5.44	$5.40
CONCESSIONER OWNS, OPERATES, AND MAINTAINS FLEET			
Total cost per passenger (round trip)	$4.26	$3.64	$3.58

The lower passenger costs associated with the subcontracting for the fleet as well as the operations and maintenance are due to the older stock a subcontractor would be likely to use, as opposed to the new buses which would be purchased by the Park Service.

Major capital cost components for the park purchased vehicles include vehicles, terminal stations, and a maintenance facility. For all alternatives, eight 43 passenger vehicles would be needed to cover the peak demand. Should the Park Service purchase the vehicles, an initial capital investment of $1.8 million would be required. (Life of vehicles is estimated to be 12 years). In addition, it was assumed that the National Park Service would develop a maintenance building with an estimated cost of $1.4 million. If the service were provided by a concessioner, both the fleet and maintenance would be covered by the vendor. Those costs are reflected in the higher concessioner operations and maintenance. The following table summarizes annual capital and maintenance costs and revenue offsets for the different shuttle scenarios based on a policy headway of 15 minutes. A narrative describing the cost implication represented in this table can be found in Appendix D, Comparative Cost Analysis of the Alternatives, under Staffing and Operations Costs.

No station or land costs were included in the estimate. The shuttle station in Seward may consist of improved bus zones adjacent to a visitor center.

TABLE 11. PROJECTED SHUTTLE OPERATIONS COSTS

	PARK SERVICE VEHICLES	CONCESSIONER VEHICLES
Hourly O&M Costs	$62	$93[1]
Total Cost per Passenger	$5.44	$3.64
Total Annual Costs Annual O&M Annual Amoritized Capital Cost	$767,000 $342,000 $425,00[2]	$513,000 $513,000[1] $0
Annual Revenue Generated	$704,000 at $5 per round trip $845,000 at $6 per round trip	$560,000 at $ per round trip $704,000 at $5 per round trip
Annual Revenue (Subsidy) (includes capital costs)	$62,000 at $5 per round trip[2] $78,000 at $6 per round trip	$51,000 at $4 per round trip $191,000 at $5 per round trip

[1] includes cost of fleet, maintenance and operations

[2] based on amortizing cost of fleet and maintenance building over a period of 12 years.

Note that these cost estimates are based on the assumption that visitation to the glacier will not be affected by the mandatory shuttle and related charge. Should a shuttle be desired, a sensitivity study should be performed to determine the affects on visitation. If the study would indicate that visitation would be affected, a corresponding reduction in fleet size would be applied and a more detailed estimate of costs and revenues would be performed.

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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